



THE UNIVERSITY *of* EDINBURGH

This thesis has been submitted in fulfilment of the requirements for a postgraduate degree (e.g. PhD, MPhil, DClinPsychol) at the University of Edinburgh. Please note the following terms and conditions of use:

This work is protected by copyright and other intellectual property rights, which are retained by the thesis author, unless otherwise stated.

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author.

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.



Online Victimisation in Adolescence: The Role of Parenting and Early Childhood Experiences

Cara Griffiths

Doctorate in Clinical Psychology

The University of Edinburgh

2017

Table of Contents

	Declaration of Own Work.....	3
	Acknowledgements and Dedication.....	4
	Thesis Abstract.....	5
Chapter 1	Systematic Review	
	1.1 Title Page.....	7
	1.2 Abstract.....	8
	1.3 Introduction.....	9
	1.4 Methods.....	14
	1.5 Results.....	19
	1.6 Discussion.....	41
	1.7 References.....	46
Chapter 2	Empirical Study	
	2.1 Title Page.....	56
	2.2 Abstract.....	57
	2.3 Introduction.....	58
	2.4 Methods.....	65
	2.5 Results.....	71
	2.6 Discussion.	80
	2.7 References.....	87
Appendices		
Appendix 1	Submission Guidelines	96
Appendix 2	Operationalisation of Quality Criteria	107
Appendix 3	Operationalisation of Overall Quality Ratings	113
Appendix 4	Summary of Measures used to Assess CV and Parenting Behaviour	114
Appendix 5	Thesis Research Proposal	116
Appendix 6	Ethical Approval from the School of Health in Social Science	136

Appendix 7	Approval from the Local Authority	137
Appendix 8	Approval of Ethics Amendment from the School of Health in Social Science	138
Appendix 9	Research and Development Management Approval	139
Appendix 10	Skewness and Kurtosis Values for the Main Variables and Covariates	141
Appendix 11	Frequency of Risky Electronic Communication Behaviours	142

Word Count: 19 241 (excluding abstract, references and appendices)


Declaration of Own Work

Name: Cara Griffiths

Title of Work: Online Victimisation in Adolescence: The Role of Parenting and Early Childhood Experiences

I confirm that this work is my own except where indicated, and that I have:

- Read and understood the Plagiarism Rules and Regulations
 - Composed and undertaken the work myself
 - Clearly referenced/listed all sources as appropriate
 - Referenced and put in inverted commas any quoted text of more than three words (from books, web, etc.)
 - Given the sources of all pictures, data etc. that are not my own
 - Not made undue use of essay(s) of any other student(s), either past or present (or where used, this has been referenced appropriately)
 - Not sought or used the help of any external professional agencies for the work (or where used, this has been referenced appropriately)
 - Not submitted the work for any other degree or professional qualification except as specified
 - Acknowledged in appropriate places any help that I have received from others (e.g. fellow students, technicians, statisticians, external sources)
 - Complied with other plagiarism criteria specified in the Programme Handbook
 - I understand that any false claim for this work will be penalised in accordance with the University regulations
 - Received ethical approval from the School of Health in Social Science, University of Edinburgh
- OR
- Received ethical approval from an approved external body and registered this application and confirmation of approval with the School of Health in Social Science's Ethical Committee

Signature 

Date ...28/04/2017.....

Acknowledgements and Dedication

I would like to thank my supervisors, Dr Ethel Quayle, Dr Angus MacBeth and Dr Caroline Smith for their dedication and guidance throughout this journey.

A special thank you to all of the young people who shared their views with me and to the school professionals for their support and collaboration. I would also like to thank my colleague, Nicole Chadwick, for giving up her weekend to rate the studies in my systematic review.

Lastly, thank you to my friends and family members for their unwavering support and encouragement. You made this possible!

This thesis is dedicated to the memory of my grandad, Jack.

Thesis Abstract

Background: Online victimisation during adolescence is associated with adverse outcomes across multiple domains. However, previous research has demonstrated that some adolescents are at greater risk of experiencing online victimisation than others. Literature on traditional peer victimisation has highlighted the importance of children's early experiences and the family context but it is unclear how these factors relate to online victimisation. The first study reviews the evidence for associations between the phenomenon of cyber-victimisation (CV) and parenting behaviours, whereas the second study investigates online victimisation which includes experiences of online harassment and unwanted contact of a sexual or offensive nature.

Aim: A systematic review was conducted to determine whether positive parenting behaviours protect against CV during adolescence. An empirical study investigated whether experiences of childhood maltreatment were associated with online victimisation and whether this relationship was mediated by attachment insecurity and risky electronic communication in an adolescent sample.

Method: A systematic review of the literature identified seventeen studies which met inclusion criteria. Parenting behaviours were categorised into offline and online parenting behaviours and the findings from each study were reported. Studies were also assessed against 15 quality criteria. In the second study, 123 students aged 12-16 were recruited. Five self-report questionnaires were administered measuring experiences of childhood maltreatment, attachment, risky electronic communication, electronic media use and online victimisation.

Results: Offline parenting behaviours, particularly general monitoring, may reduce the likelihood of adolescents experiencing CV. There was greater variation in the findings relating to online parental mediation strategies, but in general these strategies did not consistently predict a significant increase nor a reduction in CV. The empirical study found that whilst attachment anxiety partially mediated the relationship between childhood maltreatment and online victimisation, attachment avoidance and risky electronic communication did not. However, childhood maltreatment and risky electronic communication were significant predictors of online victimisation.

Conclusion: Parenting behaviours and early childhood experiences may play an important role in the victimisation of adolescents online. Interventions which promote positive parenting and attachment security may help to protect young people against online victimisation. However, more empirically rigorous and longitudinal studies are needed to enhance our understanding of the risk factors and the protective factors involved.

Chapter 1: Systematic Review¹

1.1. Title Page

Do positive parenting behaviours protect against cyber-victimisation in adolescence? A systematic review

Cara Griffiths^{a,b*}, Dr Ethel Quayle^a and Dr Angus MacBeth^{a,c}

^a School of Health in Social Science, University of Edinburgh, Medical School, Teviot Place, Edinburgh, EH8 9AG, Scotland

^b NHS Grampian, Child and Adolescent Mental Health Service, The Rowan Centre, Elgin, IV30 6GQ, Scotland

^c NHS Grampian, Royal Cornhill Hospital, Aberdeen, AB25 2ZH, Scotland

*Corresponding author email address: cara.griffiths@nhs.net

¹Produced in accordance with submission guidelines of Child Abuse & Neglect (see Appendix 1)

1.2 Abstract

Aim: Previous research has shown that parenting behaviour is associated with traditional peer victimisation. Parents play a crucial role in the socialisation of their children and many employ strategies to regulate their child's online experience, which are collectively referred to as parental mediation strategies. Therefore specific parenting behaviours may protect against experiences of cyber-victimisation (CV). This systematic review aimed to establish whether positive parenting behaviours protect against CV in adolescence.

Methods: A systematic search of eight databases was used to identify studies. Due to the lack of consensus regarding the parameters of CV and conceptual issues, this review included any study which assessed victimisation via electronic devices or the internet. The quality of each study was assessed and findings are reported.

Results: Seventeen studies meeting inclusion criteria were included. Seven positive parenting behaviours were identified. Offline parenting behaviours, such as general monitoring, were found to reduce the risk of adolescents experiencing CV. Findings regarding the five online parental mediation strategies were mixed, but overall they did not consistently predict an increase nor a reduction in CV. The majority of included studies were of reasonable quality, suggesting that conclusions may change in light of methodological improvements. None of the studies met all of the criteria used to define CV in the literature, suggesting this review may reflect the evidence base in relation to online harassment rather than CV per se.

Conclusion: Parents should prioritise general positive parenting techniques above online parental mediation strategies to reduce the risk of CV during adolescence. Policy and psychoeducational materials should be reviewed in light of these findings. More empirically rigorous and longitudinal studies are required to determine whether parenting behaviours can effectively protect against CV.

Key words: Parenting, cyber-victimisation, online harassment, adolescence

1.3 Introduction

The unprecedented increase in the use and availability of digital technology has altered the way in which we communicate. Today's adolescents have grown up immersed in the digital world. An online survey reported that 92% of adolescents use the internet on a daily basis, with nearly a quarter of respondents indicating that they are almost constantly connected (Lenhart, 2015). The internet provides young people with an additional platform to explore social relationships, one which was not afforded to previous generations.

However, its misuse led to the emergence of a new phenomenon, now commonly referred to as cyberbullying. Researchers have yet to reach agreement on the concepts underpinning cyberbullying and therefore a wide variety of definitions exist within the literature. Parallels have been drawn between traditional peer victimisation and cyberbullying, leading to considerable debate as to whether the criteria for traditional bullying is applicable to this newer phenomenon. Olweus (1999) defined traditional bullying as a pattern of behaviour involving repeated, aggressive acts over time which are inflicted with intent to cause harm and a power imbalance is evident between the perpetrator and victim. Although, this definition does not readily translate to online platforms. Additionally, certain characteristics appear specific to cyberbullying such as the potentially large captive audience, the longevity of digital content and the anonymity of the perpetrator (Fridh, Lindström, & Rosvall, 2015; Mishna, Saini, & Solomon, 2009). Following a meta-synthesis of the cyberbullying literature, Tokunaga (2010) offered this definition; "Cyberbullying is any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" (p.278). Notably, this excludes the criterion relating to the power differential. For the purposes of this study, cyberbullying was classed as any behaviour which is repetitive in nature and is intended to cause harm to the recipient; it occurs online or via electronic devices (including text or picture messaging) and a power differential exists between the perpetrator and the victim.

Researchers who have developed instruments to measure cyberbullying have included different concepts within their definition of the phenomenon, and this has

led to some inconsistency in how cyberbullying has been operationalised. In a systematic review of 44 cyberbullying instruments, Berne et al. (2012) noted that the majority of authors conceptualised cyberbullying as behaviour intended to cause harm which occurs via electronic devices but the concept of the act being repetitive in nature was included in less than 60% of the definitions provided. Ultimately, in the absence of a widely accepted definition, the measurement of the concept has diverged and as a result, instruments tend not to measure the same phenomenon.

Heterogeneity in measurement tools has ultimately led to variation in the prevalence rates reported across studies. In addition, a variety of terms have been cited in the literature, some of which are used interchangeably. In some studies, cyberbullying refers solely to the perpetration of bullying online whereas this review is interested in the experiences of the victim, therefore the term cyber-victimisation (CV) was adopted. A scoping review reported that the lifetime prevalence of CV ranged from 4.9 - 65% in adolescence (Brochado, Soares, & Fraga, 2016). However, the authors did not specify whether included studies primarily focused on CV perpetrated by peers or included non-peer related violence, which may partly account for the large variation in prevalence rates. Although this field of research remains in its infancy, studies consistently suggest that CV is associated with adverse outcomes across multiple domains such as mental health difficulties (Fisher, Gardella, & Teurbe-Tolon, 2016), substance misuse (Kowalski, Giumetti, Schroeder, & Lattanner, 2014), increased somatic symptoms and poorer general health (Moore et al., 2017), as well as reduced school attendance and lower academic attainment (Gardella, Fisher, & Teurbe-Tolon, 2017). The deleterious outcomes associated with CV provide researchers with a strong rationale to investigate the key risk and protective factors, with the aim of developing efficacious prevention and early intervention CV programmes.

Recently published meta-analyses have tended to focus on the correlates or predictors of CV at the individual level at the expense of more detailed analysis of the family context and parenting variables (Chen, Ho, & Lwin, 2016; Guo, 2016; Kowalski et al., 2014). Parents play an essential role in the socialisation of their

children, it is therefore important to consider how specific parenting behaviours may affect children's experiences of victimisation.

Empirical evidence supports the notion that children's early caregiving experiences influence the development and quality of later peer relationships (Benson, McWey, & Ross, 2006; Ladd & Pettit, 2002; Maguire et al., 2015; Pallini, Baiocco, Schneider, Madigan, & Atkinson, 2014). A secure attachment style has been linked with greater popularity (Bohlin, Hagekull, & Rydell, 2000) and social competence, irrespective of the age at which social competence was assessed (Groh et al., 2014). In contrast, harsh parenting and maltreatment during childhood has been associated with increased aggression (Chang, Schwartz, Dodge, & McBride-Chang, 2003), emotional dysregulation and peer rejection (Kim & Cicchetti, 2010), suggesting that children who come from adverse family backgrounds may be at greater risk of peer victimisation (Lereya & Wolke, 2013).

Meta-analytic evidence examining the association between specific parenting behaviours and peer victimisation at school suggested that the strongest risk factors for both victims and bully/victims (i.e. an individual who is a victim and a perpetrator) were experiences of abuse and maladaptive parenting (Lereya, Samara, & Wolke, 2013). In addition, the authors concluded that positive parenting behaviour, such as parental support and good communication, may offer some protection against victimisation within the school environment. However, this review largely focused on traditional bullying and the type of bullying was not included as a possible moderator, therefore it is unclear whether these conclusions generalise to CV.

Parental mediation of children's internet use

Parents use a range of strategies to monitor and manage their children's online experiences. Nevertheless, the increased ownership of portable and handheld digital devices may present an additional challenge for parents in ensuring their children's online safety. Parental mediation refers to the regulatory strategies employed by parents to reduce exposure to online risks whilst maximising the opportunities offered by digital media (Clark, 2011). Parental mediation strategies tend to be broadly categorised into practices which support or enable children's internet use and

those which restrict online activities (Kirwil, 2009). The EU Kids Online network investigated parental mediation strategies employed across 25 European countries and highlighted five specific strategies; active mediation of internet use, active mediation of internet safety, restrictive mediation, technical mediation and monitoring (Livingstone, Haddon, Görzig, & Ólafsson, 2011a). Active mediation involves supporting a child's internet use and promoting internet safety by encouraging online etiquette, discussing media content and problematic situations online (Duerager & Livingstone, 2012). Restrictive mediation involves parents setting rules to restrict online content, internet usage or information sharing and technological mediation refers to the use of technology to control or limit online activities through the use of filter software or parental controls (Collier et al., 2016; Hasebrink, Görzig, Haddon, Kalmus, & Livingstone, 2011). Finally, parental monitoring of online activities involves checking social networking profiles and online messages (Livingstone et al., 2011a). In a UK-based study, parents showed a preference for the use of active mediation but technical and restrictive strategies were also frequently employed (Livingstone & Helsper, 2008). The implementation of strategies tends to vary by the age and gender of the child; with younger children and females being subject to more parental mediation (Chng, Liao, Khoo, & Li, 2014; Livingstone, Mascheroni, & Staksrud, 2017).

An emerging evidence base provides a mixed picture regarding the efficacy of parental mediation strategies in managing online risks (Kirwil, Garmendia, Garitaonandia, & Martínez Fernández, 2009). A multi-national survey involving young people aged 9-16 years indicated that restrictive mediation and active mediation of internet activities reduced exposure to online risks such as sexual content, CV and contact with strangers (Duerager & Livingstone, 2012). Yet surprisingly parental monitoring and some specific active mediation strategies aimed at improving internet safety were associated with greater online risks. The author postulated that these strategies may have been employed reactively in response to children's online experiences to prevent further risk of harm. However, in the absence of longitudinal research, causal inferences cannot be made. A more recent study offered an alternative explanation suggesting that whilst restrictive mediation may well reduce exposure to online risks, this strategy also limits children's

opportunities online; comparatively, strategies which enable children's internet use provide children with greater opportunities, but this also results in exposure to greater risks online (Livingstone et al., 2017).

Cross-sectional research highlights that the efficacy of parental mediation may be dependent upon other factors such as the quality of parent-child relationship (Padilla-Walker, Coyne, Fraser, Dyer, & Yorgason, 2012). Reliance upon mediation strategies without engaging the young person may suggest a lack of trust and lead to unintended consequences. Nathanson, Wilson, McGee and Sebastian (2002) found that restrictive mediation of sexual and violent television content led young people to view this media outside the family home, undermining the regulatory strategy and arguably placing the young person at greater risk. More traditional methods of monitoring and parental support may provide an alternative approach. Certainly, these strategies have been shown to be protective factors against traditional forms of peer victimisation (Brendgen, Girard, Vitaro, Dionne, & Boivin, 2016; Cheng et al., 2010; Stavriniades, Nikiforou, & Georgiou, 2014). In a longitudinal study, Fanti, Demetriou, and Hawa (2012) showed that supportive family relationships reduced the risk of CV one year later. Moreover, lack of parental supervision and parental involvement have been identified as risk factors for cyberbullying involvement (Feldman, 2012). This suggests that the family context may be influential in heightening or reducing the risk of CV.

Rationale and aims

There has been a proliferation in studies being published on this topic in the last decade but findings remain inconclusive. Therefore, this review was conducted to determine whether positive parenting behaviours protect against CV in adolescence. The specific parameters used to define CV have not yet been agreed by researchers, and the assessment of CV tends not to differentiate between peer perpetrated CV and non-peer related victimisation, therefore this review incorporated any study which assessed victimisation or harassment via mobile communication or the internet. This will capture a broader range of literature so that methodological issues regarding the definition and measurement of the phenomenon can be explored. The primary aim of this review was to determine which positive parenting behaviours protect against CV

and which behaviours are associated with a higher risk of CV in adolescence. Secondary aims were to establish how CV is defined in the literature and to assess whether the measurement of CV is consistent with this definition. Finally, the review aimed to identify possible moderator variables and explore sources of methodological bias in the literature.

1.4 Methods

The methodology of this review was informed by the guidance provided by the Centre for Reviews and Dissemination (CRD), The University of York (2009). A search of the Cochrane Database of Systematic Reviews (CDSR), the Database of Abstracts of Reviews of Effects (DARE), the Campbell Collaboration and the general literature, indicated that a systematic review had not been recently carried out on the topic of interest.

Identification of studies

On 21st October 2016, the following databases were searched for relevant research articles: Applied Social Sciences Index and Abstracts (ASSIA; 1987 – October 2016), ERIC (1966- October 2016), Social Services Abstracts (1979- October 2016), Embase (1980- October 2016), PsycINFO (1806- October 2016), MEDLINE (1946- October 2016) and CINAHL Plus (Cumulative Index of Nursing and Allied Health Literature; 1937- October 2016). In addition, the ProQuest Dissertations & Theses Global database was searched to locate unpublished literature.

The following search terms were used to capture parenting behaviour: (parent* OR "child rear*" OR childrear* OR caregiv* OR "care giv*"). In addition, two strings of search terms were used to locate articles about CV; (online or comput* or web or internet or cyber* or electronic or media) proximity command specific to database (cyberbull* or bully* or bulli* or victim* or harass* or aggressi*). The proximity search command was included so that any search term within the two strings had to appear within five words of each other, in any order. The search terms were used in combination with each other so that articles were returned which included both parenting behaviour and CV.

Inclusion and Exclusion Criteria

Studies were included in the review if they met the following criteria:

1. Included a measure or report of CV (i.e. CV experienced rather than hypothetical scenarios).
2. Included a measure of positive parenting behaviour that was directly related to the child. Positive parenting behaviour was operationalised as any parental behaviour which aimed to promote the child's development or well-being, or aimed to protect the child or minimise the risk of harm.
3. Participants were aged 12-18 years or the mean age of the sample fell within this age range.
4. Assessed whether positive parenting behaviour predicted CV.
5. The study was published in English.

Exclusion criteria were as follows:

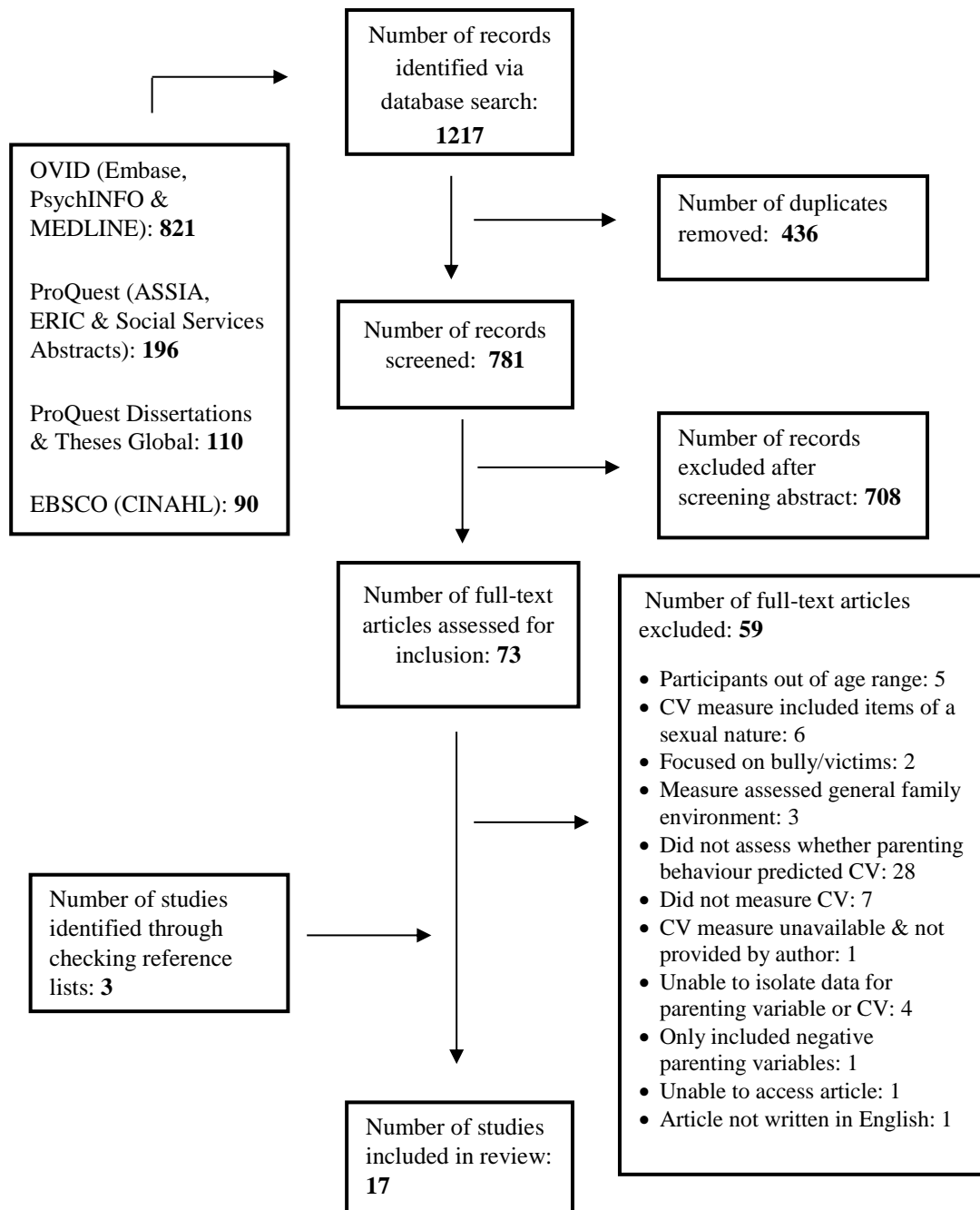
1. Studies that only measured physical, verbal or relational bullying.
2. Studies that focused solely on negative parenting behaviour e.g. abuse, overprotection or parental substance misuse.
3. Studies that measured CV but the statistical analysis did not differentiate CV from other types of bullying.
4. Studies that only reported data on bully/victims (i.e. young people who were both perpetrators and victims of CV).
5. Studies which focused on unwanted sexual solicitation or CV within romantic relationships. This exclusion criterion was applied to ensure that the review was focused on CV which was not primarily sexually motivated.
6. Studies where survey or questions used to measure CV were unavailable and could not be provided by the author.
7. Studies that used measures to assess the family environment opposed to parenting behaviour specifically.

8. Studies which used a clinical population or focused on specific populations such as sexual minority youth, young people with disabilities etc. Studies which focused specifically on these populations were excluded as research has shown that they are at higher risk of bullying than the general population.
9. Studies that solely employed qualitative methods.
10. Book chapters, case studies or conference abstracts.

Following the literature search, articles were exported to Mendeley, a reference management program, to enable abstracts to be screened. The title and abstract of each article was screened to determine whether it met inclusion criteria 1 to 3. Those studies which did not meet these criteria or met the exclusion criteria were discarded. The full text of the potentially eligible articles were then reviewed to determine whether they met the remaining inclusion criteria. All duplicate articles were removed. Figure 1 provides an overview of the study selection process.

A manual search of the reference lists of the selected articles for inclusion and the reference lists of four similar reviews was conducted (Chen et al., 2016; Guo, 2016; Kowalski et al., 2014; Lereya et al., 2013). This resulted in a further 16 articles being identified, 3 of which were included in the review.

Figure 1. PRISMA flowchart of the study selection process



Quality assessment

The quality of the studies included in the review were rated specifically in relation to the aims of this systematic review. A quality assessment tool was developed after consulting the guidance provided by the CRD (2009) regarding the key areas of study quality assessment. Studies were rated upon the following quality criteria:

- 1) The study has a clear rationale and a focused research question
- 2) The aims/objectives and hypotheses of the study regarding CV and the relevant parenting variable(s) are clearly stated
- 3) The study uses an appropriate design to answer the research question
- 4) A power calculation was conducted and an adequate sample size was achieved based on this calculation
- 5) The population being studied is clearly specified
- 6) The recruitment strategy is appropriate and clearly outlined
- 7) There was a sufficient response rate to participation
- 8) CV is clearly defined and the measurement of CV is consistent with the definition provided in the study
- 9) The measure(s) used to assess CV are valid and reliable
- 10) The measure(s) used to assess parenting behaviour are valid and reliable
- 11) Covariates are identified and controlled for in the statistical analysis
- 12) The statistical analysis is appropriate for the study design
- 13) The results of the study are clearly outlined with reference made to the original research question and are considered in the context of previous research
- 14) The generalisability of the study findings are discussed
- 15) The limitations of the study are outlined

Each quality criterion was operationalised (see Appendix 2 for further details). Studies were assigned one of the following ratings for each of the 15 criteria: *well covered*, *adequately addressed*, *poorly addressed*, *not addressed* or *not reported*. The overall quality of the study was then categorised as *excellent*, *very good*, *reasonable* or *limited* (Morris, 2015; see Appendix 3). All the authors were contacted to request information which was not reported in the article or thesis. Nine authors responded, but only four provided all of the requested information.

To determine the reliability of the quality rating process, five studies included in the review were randomly selected and independently rated by a second reviewer. Inconsistencies in ratings were discussed and amended where appropriate. Cohen's kappa indicated that the inter-rater reliability for the quality assessment was very good ($k = .88$, $p < .0001$). Statistics were extracted from each study in relation to the key findings to determine the predictive value of each parenting behaviour (see Table 3). Each parenting behaviour was then classified as a protective factor, risk factor or not a significant predictor of CV for each study. Parenting behaviours were classified as protective factors if the results of the study demonstrated that the behaviour was significantly associated with a reduction in CV. Parenting behaviours were classified as risk factors if the behaviour significantly predicted higher levels of CV.

1.5 Results

Study characteristics

17 studies, representing 15 cohorts, were included in the review. This involved a combined total of 35809 young people and 1609 parents. The majority of studies employed a cross-sectional design, with the exception of Hébert, Cénat, Blais, Lavoie, & Guerrier (2016) which was a longitudinal study, but CV was only measured at one time point. Mesch (2009) and Navarro and Jasinski (2012) used the same secondary data set, therefore these studies should be considered as one. Although, Mesch (2009) measured some additional parenting behaviours and results are reported separately where their findings diverge. Chang et al. (2015) and Chang et al. (2016) also used the same data, but the latter included parental reports ($n = 1417$), and Chang et al. (2015) included a measure of attachment.

The age of participants, where reported, ranged from 10 to 23 years. Three studies did not report this information (Bossler, Holt, & May, 2012; Katzer, Fetchenhauer, & Belschak, 2009; Wang, Iannotti, & Nansel, 2009). Six studies focused on younger adolescents with ages ranging from 10-16 years (Chang et al., 2015; Chang et al., 2016; Park, Na, & Kim, 2014; Sanzone-Goodrich, 2013; Taiariol, 2010; Ybarra, Diener-West, & Leaf, 2007) and one study focused on older adolescents aged 14-18 years (Hébert et al., 2016). Sample sizes ranged from 65 to 8194. Most studies were conducted in the USA. Only two studies used both parent report and self-reported data (Chang et al., 2016; Yale, 2013). Study characteristics are summarised in Table 1.

Table 1: Summary of Study Characteristics

	Concept measured	Time parameter	Minimum threshold for coding of CV	Design of study	Location	N	Age range (mean) M: F ratio	Parenting behaviour
Bossler et al. (2012)	Online harassment victimisation	In the last 12 months	1 to 2 times in the last 12 months	Cross-sectional	Kentucky, USA	434	Age: NR 51.2% female	Software installed by parents; “physical guardianship”
Chang et al. (2015)	Cyberbullying victimisation	NR	A few times within a year	Cross-sectional	Taiwan	1917	13-15 (14) M:F ratio NR	Parental attachment; parental mediation: active use; active safety; monitoring; technical; restrictive
Chang et al. (2016)	Cyberbullying victimisation	NR	NR	Cross-sectional	Taiwan	1917 YP, 1417 parents	13-15 (14) M:F ratio NR	Parental mediation: active use; active safety; monitoring; technical; restrictive
Hébert et al. (2016)	Cyberbullying	NR	NR	Longitudinal	Quebec	8194	14-18 (NR) 57.8% female	Maternal support
Hong, Lee, Hunter, Patton, & Rivers (2016)	Cyberbullying victimisation	NR	Once	Cross-sectional	US (cross-national study)	7533	11-17.3 (14.33) 48.5: 51.5	Parental monitoring (general); parent/guardian support; peer group accepted by parents
Katzer et al. (2009)	Internet chat victimisation	NR	Every few months	Cross-sectional	Germany	1700	Mean age: 14.9 55.3% females	Emotional parent-child relationship; belief of parents in child’s ability to act
Khurana, Bleakley, Jordan, & Romer (2015)	Online harassment	In the last 12 months	One incident or more in the last 12 months	Cross-sectional	US (online survey)	629	12-17 (NR) 49% female	Parental monitoring; parental internet restriction
Martins, Simão, Freire, Caetano, & Matos (2016)	Cyber-victimization	In the past year	1-4 times a year	Cross-sectional	Portugal	3525	10-23 (13.6) 47.7: 52.1	Family rules

Mesch (2009)	Cyberbullying	NR	1 event or more	Cross-sectional	US	935	12-17 (14.71) 51: 49	Parental mediation: rules on website; rules on information sharing; rules on time online; parent monitors sites, parent checks website, installed filter software
Navarro & Jasinski (2012)	Cyberbullying	Life time incidence	1 event or more	Cross-sectional	US	935	12-17 (14.50) 50.5: 49.5	Guardianship; parent checks browser; parent uses website filter; parent uses software which records internet activity
Park et al. (2014)	Cyberbullying	In the past 12 months	Almost never	Cross-sectional	South Korea	1200	12-15 (13.9) 51.3: 48.8	Communication time with parents
Sanzone-Goodrich (2013)	Cyberbullying	NR	One or more incidents	Cross-sectional	US	65	12-16 (14.61) 46.2: 53.8	Perceived parental emotional availability
Sasson & Mesch (2016)	Cyberbullying	In the last year	A few times a month or less often	Cross-sectional	Israel	495	10-18 (13.83) 53.7: 46.3	Parental mediation through guidance, supervision & non-intervention
Taiariol (2010)	Cyberbullying victimisation	In the past school year	NR	Cross-sectional	US	257	12-14 (NR) 54.5: 45.5	Parental responsiveness; parental monitoring
Wang et al. (2009)	Cyberbullying	In the past 2 months	Only once or twice	Cross-sectional	US	7182	NR (14.3) 47.8: 52.2	Parental support
Yale (2013)	Cyber-victimisation	In the last year	NR	Cross-sectional	US	155 YP; 141 mothers; 51 fathers	12-18 (14.38) 60% female	Solicitation about internet/ phone use; family rules about internet/ phone use; covert monitoring of teen's internet/phone use
Ybarra et al. (2007)	Internet harassment	In the last year	1 or more incidents	Cross-sectional	US	1588	10-15 (12.6) 52.4% male	Emotional connectedness with caregiver; monitoring

Notes: NR = not reported, YP = young people

Conceptualising cyber-victimisation

Studies included in the review used different terms to define their dependent variable, such as cyberbullying, cyber-bullying victimisation or online harassment. Four of the studies claimed to measure online harassment or internet harassment, which tends to be considered as a less severe form of CV (Wolak, Mitchell, & Finkelhor, 2007). To determine whether there were any conceptual differences between these variables, each measure used to assess CV was compared against the four criteria commonly used to define CV in the literature (Dooley, Pyżalski, & Cross, 2009): (1) aggressive, hurtful or hostile acts carried out with the intent to cause harm; (2) the behaviour is repetitive in nature; (3) there is an imbalance of power between the perpetrator and the victim; (4) the behaviour occurs online or via electronic devices (see Table 2).

Although all the measures enquired about aggressive, hurtful and/ or hostile acts, most measures did not assess whether these acts were deliberate or were intended to cause harm. Only one study captured this within their measure by providing a clear definition to participants at the beginning of the questionnaire (Taiariol, 2010). Three studies adapted the Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003) which measures traditional victimisation and specifies criterion 1 to 3 as part of the introduction to the questionnaire. Although, none of the authors clarified whether their adapted versions retained this definition.

Ten studies coded a participant as a cyber-victim if they reported experiencing one or more acts of aggression or hostility online, therefore they were classed as not fulfilling the criterion for assessing repetitive behaviour. Three studies met this criterion by the way in which they coded for CV (Chang et al., 2015; Katzer et al., 2009; Yale, 2013). The four remaining studies did not clearly report how they coded for CV or it was difficult to determine whether their threshold assessed behaviour that was repetitive in nature.

Taiariol (2010) was the only study to assess whether there was an imbalance of power between the perpetrator and victim by stating this in their definition of cyberbullying victimisation as part of their questionnaire.

Table 2. Summary of CV Concepts and whether the CV Instrument Assessed the Four Cyberbullying Criteria

Study	Concept measured	Definition	Cyberbullying criteria assessed by CV instrument			
			Intent to cause harm	Behaviour occurs repeatedly	Imbalance of power	Occurs online/via electronic devices
Bossler et al. (2012)	Online harassment victimisation	“Threatening, worrisome, emotionally hurtful or sexual messages sent via an electronic medium that can lead to victims to feel fear or distress”	N	N	N	Y
Chang et al. (2015)	Cyberbullying victimisation	None reported	N	Y	N	Y
Chang et al. (2016)				UN		
Hébert et al. (2016)	Cyberbullying	“an aggressive, deliberate, and repeated behaviour inflicted by an individual to another through the use of computers, cell phones, and other electronic devices”	N	UN	N	Y
Hong et al. (2016)	Cyberbullying victimisation	“a repeated assault through electronic means such as e-mails, text messages, chat rooms or instant messaging; displaying photos or videos on mobile or web, and excluding someone from social networks”	UN	N	UN	Y
Katzer et al. (2009)	Internet chat victimisation	Minor victimisation: “being harassed, threatened, abused, or insulted or others starting a fight during chat sessions or disturbing chat conversations” Major victimisation: “being excluded or avoided during chat sessions, being blackmailed or put under pressure, or being teased or slandered”	UN	Y	UN	Y
Khurana et al. (2015)	Online harassment	“sending e-mail or text messages that are intended to embarrass or harass a peer”	N	N	N	Y
Martins et al. (2016)	Cyber-victimization	“repeated aggressive and intentional actions with the use of electronic devices (e.g. cell phones and computers) and associated programs (e.g. e-mail, the Internet, and social networks), by means of sending messages and/or creating websites that insult, denigrate, threaten, or harass others in some way”	N	N	N	Y

Mesch (2009)	Cyberbullying	“wilful and repeated harm inflicted through the use of e-mail, cell phone, instant messaging, and defamatory Web sites.” “an act of aggression that can take the form of purposeful harassment”	N	N	N	Y
Navarro & Jasinski (2012)		“‘wilful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices’”				
Park et al. (2014)	Cyberbullying	“an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself”	N	N	N	Y
Sanzone-Goodrich (2013)	Cyberbullying	“is technology-assisted bullying i.e. wilful and repeating harm inflicted through the use of computers, cell phones, and other electronic devices such as text messages, instant messages, emails, chat rooms, and social networking websites (Hinduja & Patchin, 2009, p. 5)”	N	N	N	Y
Sasson & Mesch (2016)	Cyberbullying	None reported	N	UN	N	Y
Taiariol (2010)	Cyberbullying victimisation	“the use of information and communication technologies such as email, cell phone, and pager text messages, instant messaging, defamatory personal web sites, and defamatory online personal polling web sites, to support deliberate, repeated, and hostile behavior by an individual or group, that is intended to harm others (Belsey, 2005, p. 3)”	Y	UN	Y	Y
Wang et al. (2009)	Cyberbullying	“a form of aggression that occurs through personal computers (e.g., e-mail and instant messaging) or cell phones (e.g., text messaging)”	UN	N	UN	Y
Yale (2013)	Cyber-victimisation	None reported	N	Y	N	Y
Ybarra et al. (2007)	Internet harassment	“an overt, intentional act of aggression towards another person online (Ybarra & Mitchell, 2004)”	N	N	N	Y

Notes: Y= criterion assessed by CV instrument, N= criterion not assessed by CV instrument, UN= unclear whether criterion assessed

Again, it was unclear whether three further studies met this criterion due to a lack of information about their adaptations to the Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003). Eleven studies did not fulfil this criterion. All the studies fulfilled the fourth criterion by including items in their measures which specifically enquired about CV which occurred online or through mobile phones.

Measurement of cyber-victimisation

Six studies used one or two items to measure CV. Three studies added or adapted items from the Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003) and ten studies developed their own items or surveys. Only four studies used or adapted previously developed measures. Six studies assessed victimisation which occurred solely via the internet; whereas ten studies also incorporated victimisation using mobile phones or text messages. Katzer et al. (2009) measured CV experienced exclusively in internet chat rooms. See Appendix 4 for an overview of the measures that studies in this review used to assess CV.

Measurement of parenting behaviour

Five studies incorporated at least one measure of parenting behaviour which had been developed and used in previous research (see Appendix 4 for an overview of the measures used to assess parenting behaviour). Four studies adapted questionnaires from prior research and the remaining eight studies developed their own items or surveys. The parenting behaviours assessed in this review can be broadly categorised into offline parenting behaviours and online parental mediation strategies. Regarding offline parenting behaviour, eight studies assessed emotional availability/parental support and four studies measured parental monitoring, i.e. the extent to which parents know about their child's activities and whereabouts.

With regards to online parental mediation strategies, the categories outlined by the EU Kids Online network were adopted as the majority of the parental mediation variables mapped on to these categories well (Livingstone et al., 2011a). In addition, three studies adapted and used the measures provided by the EU Kids Online research network. Six studies looked at technical mediation. This involves using technology, such as parental controls or filter software, to control or limit online

content. Six studies considered restrictive mediation which refers to parents setting rules or limits to restrict online activities, internet use or information sharing. Online parental monitoring which involves checking websites visited, monitoring online contact and social networking profiles was assessed by six studies. Five studies considered active mediation strategies. These can be subcategorised into active mediation of internet use which involves parents discussing and sharing online activities with their children and active mediation of internet safety which involves offering guidance and help when they encounter difficulty or distressing situations online. Finally, three studies assessed other parenting behaviours which did not map on to the above categories: parental acceptance of peer group, parental belief in the child's ability to act and parental mediation through non-intervention.

Offline parenting behaviours

The review identified two offline parenting behaviours, emotional availability/parental support and general monitoring. There was some inconsistency in the studies' findings regarding whether emotional availability and parental support were significant predictors of CV. Five studies of reasonable quality indicated that the variables significantly predicted lower levels of CV, conversely one study of lower quality reported that parental responsiveness was a significant predictor of greater CV (Taiariol, 2010). However, four studies concluded that emotional availability and parental support were not significant predictors of CV. This included the study by Katzer et al. (2009) which demonstrated greater methodological strength particularly in relation to the measures used. Nonetheless, this study focused solely on victimisation in chat rooms whereas the other studies measured CV across multiple online platforms. Ybarra et al. (2007) noted that whilst lower emotional connectedness with caregivers was associated with higher odds of experiencing frequent harassment, it was not a significant predictor of infrequent harassment suggesting that the frequency of harassment may be a potential moderating factor.

Four studies measured general monitoring; although these studies varied in quality, they all reported that general monitoring was associated with less CV. This suggests consistent evidence for general monitoring as a protective factor against CV, however, the strength of association was small. Structural equation modelling

analyses conducted by Khurana et al. (2015) did not report any moderating effects of gender or age which indicated that online parental monitoring had a similarly protective effect for adolescents regardless of their age or gender.

Online parental mediation strategies

Five online parental mediation strategies were identified in this review; online parental monitoring; restrictive mediation; technical mediation; active mediation of internet safety and active mediation of internet use.

In comparison to general monitoring, the results of studies which assessed online parental monitoring were more mixed. Chang et al. (2015) and Chang et al. (2016) came to different conclusions despite using the same self-report data. Chang et al. (2016) found that parental monitoring was associated with less cyberbullying victimisation, although this association was very small, yet Chang et al. (2015) reported that it was not a significant predictor. The studies employed different statistical analyses and the study in 2016 incorporated self-report and parental reports of parental mediation strategies, which may account for the different results.

Mesch (2009) and Navarro and Jasinski (2012) used the same data and both studies concluded that parental monitoring was not a significant predictor of CV. In contrast to the other studies, Sasson and Mesch (2016) found that parental monitoring was predictive of CV. Although, the measure used in this study included some items about technical mediation therefore the predictive value of parental monitoring is less clear.

The majority of studies indicated that collectively restrictive mediation strategies were not significant predictors of CV. Although, when analysing restrictive mediation strategies on an individual basis, Mesch (2009) found that placing restrictions on websites visited was associated with significantly lower odds of experiencing cyberbullying. In addition, gender differences were noted; establishing rules on information sharing reduced the odds of experiencing cyberbullying for boys but not girls. Age was not considered as a moderating variable in this study. This suggests that some restrictive strategies may be more effective than others but on

Table 3: Statistics Extracted from each Study and Interpretation of Results

Emotional availability & parental support: Significant findings			
Study	Parenting variable	Results	Interpretation of results
Chang et al. (2015)	Parental attachment (high)	O.R. 0.79, 95% CI (.68, .93), <i>p</i> -value <i>NR</i>	Higher levels of parental attachment were associated with lower odds of cyberbullying victimisation
Hébert et al. (2016)	Maternal support (high)	$\beta = -.08, p < .001$	Higher levels of maternal support were associated with lower levels of cyberbullying
Park et al. (2014)	Communication time with parents (high)	$b = -.004, \beta = -.081, t = -2.77, p < .01$	Greater communication time with parents was associated with less cyber-victimisation
Taiariol (2010)	Parental responsiveness (high)	$\beta = .18, SE .05, t = 2.55, p < .05$	Higher parental responsiveness was associated with greater cyber-victimisation
Wang et al. (2009)	Parental support (high)	O.R. 0.55, 95% CI (.43, .72), <i>p</i> -value <i>NR</i>	Higher levels of parental support were associated with lower odds of becoming a cyber-victim
Ybarra et al. (2007)	Emotional connectedness with caregiver (low)	Frequent harassment: AOR 1.3, 95% CI (1.1, 1.4), $p \leq .001$	Lower emotional connectedness with caregivers was associated with higher odds of experiencing frequent harassment
<i>Non-significant findings</i>			
Study	Parenting variable	Results	Interpretation of results
Hong et al. (2016)	Parent/guardian support (high)	$b = -.02, 95\% \text{ CI } (-.05, .01), p \geq .05$	Higher parent/guardian support was not significantly associated with lower levels of cyberbullying victimisation
Katzer et al. (2009)	Emotional parent-child relationship* (high) *also comprises of some general monitoring questions	Chat victim minor: $\beta = -.02, p \geq .05$ Chat victim major: $\beta = -.02, p \geq .05$	More general monitoring and emotional closeness within the parent-child relationship was not significantly associated with lower levels of minor and major chat victimisation

Sanzone-Goodrich (2013)	Perceived maternal emotional availability (high)	O.R. 1.004, $\beta = .004$, SE .052, $p = .931$	Neither perceived maternal nor paternal emotional availability significantly affected the odds of experiencing cyberbullying victimisation
	Perceived paternal emotional availability (high)	O.R. 0.841, $\beta = -.173$, SE .090, $p = .055$	
Ybarra et al. (2007)	Emotional connectedness with caregiver (low)	Infrequent harassment: AOR 1.1, 95% CI (1.0, 1.2), $p > .05$	Lower emotional connectedness with caregivers did not significantly affect the odds of experiencing infrequent internet harassment

General monitoring: Significant findings

Study	Parenting variable	Results	Interpretation of results
Hong et al. (2016)	Parental monitoring (high)	$b = -.04$, 95% CI (-.07, -.01), $p < .01$	Higher levels of general monitoring was associated with less cyberbullying victimisation
Khurana et al. (2015)	Parental monitoring (high)	$b = -.40$, SE .12, $p < .001$	Higher levels of general monitoring were associated with less online harassment
Taiariol (2010)	Parental monitoring (high)	$\beta = -.21$, SE .04, $t = -3.08$, $p < .01$,	Higher levels of general monitoring were associated with lower levels of cyber-victimisation
Ybarra et al. (2007)	Monitoring (low)	Infrequent harassment: AOR 1.2, 95% CI (1.0, 1.4), $p \leq .05$	Lower general monitoring was associated with higher odds of experiencing both frequent and infrequent internet harassment
		Frequent harassment: AOR 1.5, 95% CI (1.2, 1.8), $p \leq .001$	

Online parental monitoring: Significant findings			
Study	Parenting variable	Results	Interpretation of results
Chang et al. (2016)	Monitoring mediation	$\beta = -.03$, SE .01, $t = -3.00$, $p < .01$	Using parental monitoring strategies was associated with lower levels of cyberbullying victimisation
Sasson & Mesch (2016)	Mediation through supervision* (high) *included some questions about technical mediation	O.R. 1.24, $b = .21$, SE .10, 95% CI (1.01, 1.51), $p \leq .05$	Greater parental mediation via supervision was associated with higher odds of experiencing cyberbullying
<i>Non- significant findings</i>			
Chang et al. (2015)	Monitoring mediation	O.R. 1.03, 95% CI (.92, 1.15), p -value <i>NR</i>	Using monitoring strategies did not affect the odds of experiencing cyberbullying victimisation
Mesch (2009)	Checks websites visited	O.R. 1.07, $b = .07$, SE .20, $p \geq .05$	Checking websites that children visit did not significantly affect the odds of experiencing cyberbullying
Navarro & Jasinski (2012)	Checks browser history	O.R. 1.12, $b = .12$, SE .13, $p \geq .05$	Checking browser history does not significantly affect the odds of experiencing cyberbullying
Yale (2013)	Covert monitoring of internet & phone use (high)	Maternal report: Beta= .04, $p \geq .05$ Paternal report: Variable excluded from stepwise regression model	Higher levels of covert monitoring were not significantly associated with cyber-victimisation

Restrictive mediation: Significant findings			
Study	Parenting variable	Results	Interpretation of results
Chang et al. (2015)	Restrictive mediation (high)	O.R. 0.89, 95% CI (.82, .95), <i>p</i> -value <i>NR</i>	Higher levels of restrictive mediation were associated with lower odds of cyberbullying victimisation
Mesch (2009)	Rules on sites visited	O.R. 0.56, <i>b</i> = -.57, SE .26, <i>p</i> < .01	Setting rules about which websites can/cannot be visited was associated with lower odds of experiencing cyberbullying
<i>Non- significant findings</i>			
Chang et al. (2016)	Restrictive mediation (high)	β = -.01, SE .01, <i>t</i> = -.81, <i>p</i> ≥ .05	Higher levels of restrictive mediation were not significant associated with a reduction in cyberbullying victimisation
Khurana et al. (2015)	Parental internet restriction* *included one question about parental monitoring	Statistics not reported	Parental internet restriction did not have a significant effect on online harassment
Martins et al. (2016)	Family rules* (high) *included one question about general rules	<i>b</i> = -.002, SE .006, β = -.006, <i>p</i> ≥ .01	Parents setting more rules was not significantly associated with lower levels of cyber-victimisation
Mesch (2009)	Control of time online	O.R. 0.76, <i>b</i> = -.27, SE .20, <i>p</i> ≥ .05	Controlling time online and having rules about information sharing were not significantly associated with lower odds of experiencing cyberbullying
	Rules on information sharing	O.R. 0.78, <i>b</i> = -.23, SE .18, <i>p</i> ≥ .05	
Yale (2013)	Family rules about internet & phone use (high)	Maternal report: Beta = .03, <i>p</i> ≥ .05 Paternal report: Variable excluded from stepwise regression model	Having more family rules was not significantly associated with experiencing cyber-victimisation

Technical mediation: Significant findings			
Study	Parenting variable	Results	Interpretation of results
Bossler et al. (2012)	Physical guardianship	Total harassment: O.R. 1.83, $b = .60$, SE .29, $p < .05$ Public harassment: O.R. 1.99, $p < .05$ Private harassment: O.R. 1.89, $p < .05$	Having software installed which restricts online content was associated with greater odds of experiencing public and private online harassment victimisation
Navarro & Jasinski (2012)	Parents use website filter	O.R. 0.77, $b = -.26$, SE .13, $p < .05$	Using a website filter significantly reduced the odds of experiencing cyberbullying
Sasson & Mesch (2016)	Mediation through supervision* (high) *half of the questions focus on parental monitoring	O.R. 1.24, $b = .21$, SE .10, 95% CI (1.01, 1.51), $p \leq .05$	Greater parental mediation via supervision was associated with higher odds of experiencing cyberbullying
<i>Non-significant findings</i>			
Chang et al. (2015)	Technical mediation	O.R. 1.14, 95% CI (1.00 - 1.29), p -value <i>NR</i>	Using technical mediation did not affect the odds of experiencing cyberbullying victimisation
Chang et al. (2016)	Technical mediation	$\beta = -.01$, SE .01, $t = -.16$, $p \geq .05$	Using technical mediation was not significantly associated with less cyberbullying victimisation
Mesch (2009)	Filter installed to prevent access to websites Installed monitoring software to record online activities	O.R. 0.93, $b = -.06$, SE .19, $p \geq .05$ O.R. 0.73, $b = -.30$, SE .20, $p \geq .05$	Having a filter installed did not significant affect the odds of experiencing cyberbullying Having monitoring software installed did not significant affect the odds of experiencing cyberbullying
Navarro & Jasinski (2012)	Uses software that records internet activities	O.R. 1.13, $b = .12$, SE .13, $p \geq .05$	Using software to record online activities does not significant affect the odds of experiencing cyberbullying

Active Mediation of Internet Safety: <i>Non-significant findings</i>			
Study	Parenting variable	Results	Interpretation of results
Chang et al. (2015)	Active safety mediation	O.R. 0.96, 95% CI (.85, 1.08), <i>p</i> -value <i>NR</i>	Using active safety mediation strategies did not affects the odds of experiencing cyberbullying victimisation
Chang et al. (2016)	Active safety mediation	$\beta = .02$, SE .01, $t = 1.67$, $p \geq .05$	Using active safety mediation strategies was not significantly associated with less cyberbullying victimisation
Sasson & Mesch (2016)	Mediation through guidance (high)	O.R. 1.11, $b = .10$, SE .09, 95% CI (.93, 1.31), $p > .05$	Greater mediation through guidance was not significantly associated with the odds of experiencing cyberbullying
Active Mediation of Internet Use: <i>Significant findings</i>			
Study	Parenting variable	Results	Interpretation of results
Yale (2013)	Solicitation about internet/phone use	Paternal report: Beta= .30, $p < .05$	Greater paternal solicitation about phone & internet use was associated with higher levels of cyber-victimisation
<i>Non- significant findings</i>			
Chang et al. (2015)	Active use mediation	O.R. 1.07, 95% CI (.93, 1.22), <i>p</i> -value <i>NR</i>	Using active use mediation did not affect the odds of experiencing cyberbullying victimisation
Chang et al. (2016)	Active use mediation	$\beta = .02$, SE .01, $t = 1.13$, $p \geq .05$	Active use mediation strategies were not significantly associated with less cyberbullying victimisation
Khurana et al. (2015)	Parents' co-use of the internet	Statistics not reported	Parental co-use was not significantly associated with online harassment

Yale (2013)	Solicitation about internet/phone use (high)	Maternal report: Beta= .04, $p \geq .05$	Greater maternal solicitation about phone & internet use was not significantly associated with cyber-victimisation
-------------	--	--	--

Miscellaneous

Study	Parenting variable	Results	Interpretation of results
Hong et al. (2016)	Peer group accepted by parents (high)	$b = -.03$, 95% CI (-.04, -.00), $p < .05$	Greater acceptance of peer group by parents was associated with less cyberbullying victimisation
Katzer et al. (2009)	Parental belief in the child to act	Chat victim minor: $\beta = -.02$, $p \geq .05$ Chat victim major: $\beta = -.06$, $p \geq .05$	Greater belief in child's ability to act was not significantly associated with lower levels of minor and major chat victimisation
Sasson & Mesch (2016)	Mediation through non-intervention (high)	O.R. 1.11, $b = .11$, SE .09, 95% CI (.93, 1.33), $p > .05$	Non-intervention was not significantly associated with the odds of experiencing cyberbullying

Gender as a moderating variable

Study	Parenting variable	Results	Interpretation of results
Mesch (2009)	Installed monitoring software to record online activities (technical)	Boys: O.R. 0.40, $b = -.90$, SE .31, $p < .01$ Girls: O.R. 0.95, $b = -.04$, SE .29, $p \geq .05$	Installing monitoring software significantly reduced the odds of experiencing cyberbullying for boys but not for girls.
	Rules on information sharing (restrictive)	Boys: O.R. 0.55, $b = -.59$, SE .27, $p < .01$ Girls: O.R. 0.99, $b = -.01$, SE .25, $p \geq .05$	Setting rules on information sharing was associated with lower odds of experiencing cyberbullying for boys but not for girls.

balance there is limited evidence to suggest that collectively restrictive mediation strategies reduce CV.

The findings in relation to technical mediation were inconsistent. Results reported by Bossler et al. (2012) and Sasson and Mesch (2016) suggest that technical mediation strategies may increase the risk of CV. However, Sasson and Mesch (2016) combined items regarding technical mediation and parental monitoring in their measurement tool which may have affected the results. There was variation in the results reported by two studies using the same dataset: Navarro and Jasinski (2012) found that using a website filter reduced the odds of experiencing cyberbullying whereas Mesch (2009) found this relationship to be non-significant. The two studies included different covariates in their logistic regression models which may explain the disparity in results. There was greater agreement between the studies regarding two other strategies of technical mediation, checking websites visited and using monitoring software to record online activity, which were not significant predictors. Although, additional analyses conducted by Mesch (2009) found some gender differences; monitoring online activity was effective at reducing the risk of cyberbullying but only for boys. No other gender differences for technical mediation were significant. Both studies by Chang et al. (2015 & 2016) were in agreement that technical mediation does not predict cyberbullying victimisation.

The findings of three studies of reasonable quality concurred that active mediation of internet safety was not a significant predictor of CV (Chang et al., 2015; Chang et al., 2016; Sasson & Mesch, 2016). Three studies also found that active mediation of internet use was not significantly associated with CV. However, one study of limited quality found that whilst maternal solicitation of phone and internet use was not a significant predictor, greater paternal solicitation was associated with higher levels of CV. A strength of this study was that it considered the potentially differing roles that maternal and paternal behaviour may have. Nevertheless, only a small sample of fathers were recruited ($n = 51$) and a post-hoc calculation indicated that the study lacked adequate power which reduced its overall quality rating. Moreover, the paternal data was analysed using stepwise regression methods therefore the finding

that paternal solicitation may be associated with greater CV should be considered tentatively within the context of these limitations.

Other parenting behaviours

Three other parenting behaviours were identified through the review process which did not fit into the above categories. Hong et al. (2016) found that parental acceptance of the child's peer group was predictive of less cyberbullying victimisation. Parental belief in the child to act in response to CV was not found to be a significant predictor (Katzner et al., 2009), but perhaps most interestingly neither was mediation through non-intervention. This suggested that not employing parental mediation strategies and allowing the child greater autonomy online neither increased nor decreased their risk of experiencing CV.

Quality assessment

None of the studies were assigned an overall quality rating of excellent as the majority of the quality criteria were not well addressed (see Table 4). Twelve studies were rated as being of reasonable quality overall indicating that the limitations of the studies may have modestly affected their findings. Katzner et al. (2009) used well validated measures and it was one of the few studies to include a measure which was consistent with the concept it aimed to assess. It did not specify clear hypotheses and some statistical information in the results section was not reported, however, overall these limitations were considered unlikely to have affected the conclusions drawn in the study. Khurana et al. (2015) showed many strengths, but the psychometric properties of the measure of online harassment were not reported in the article, therefore the study was rated as very good as opposed to excellent. Three studies were given a rating of limited quality (Sanzone- Goodrich, 2013; Taiariol, 2010; Yale, 2013) namely due to covariates not being controlled for, CV not being defined within a study and post-hoc analyses indicating that two of the studies were under powered thereby increasing the likelihood of type II error.

All of the studies provided a rationale for their research question, based upon empirical evidence yet almost half of the studies did not explicitly state any hypotheses. Only one study carried out an *a priori* power analysis, but the author

overestimated the effect size within the power calculation and the study was underpowered as noted above (Sanzone- Goodrich, 2013). In addition, Sasson and Mesch (2016) and Ybarra et al. (2007) were rated as poorly addressed regarding power, even though they both recruited large numbers of participants, the studies did not have sufficient power to detect a small effect of parenting behaviour on CV. A post-hoc calculation indicated that over 4000 participants would be required to detect such a small effect size.

The majority of studies clearly outlined the population under study and used an appropriate recruitment method. Although less than a third of studies provided the period for recruitment or data collection. Reporting the response rate to participation was variable and only five studies reported a response rate greater than 70%. Most studies used measures which were not consistent with how they defined their own CV variable. Very few studies used instruments with robust psychometric properties to measure CV and eight studies did not report any information about the reliability or validity of the CV instruments. Many of the instruments used to measure parenting behaviour demonstrated reasonable reliability but four studies did not report this information. Most studies accounted for covariates and all studies analysed their data using appropriate statistical methods. 15 studies provided an adequate report of their results and related their findings back to the original research question. Only seven of the studies demonstrated that generalisability had been adequately or well considered. All but two studies gave some consideration to the study's limitations and their potential impact.

Table 4. Quality assessment of included studies

Quality Criteria																
Study	Rationale & research question	Aims & hypotheses	Design of study	Power	Population specified	Recruitment strategy	Response rate	Consistent measure & definition of CV	Measure of CV	Measure of parenting behaviour	Covariates controlled for	Statistical analysis	Results	Generalisability	Limitations	Overall quality rating
Bossler et al. (2012)	WC	PA	AA	AA	AA	AA	NR	AA	PA	NR	AA	AA	WC	AA	AA	R
Chang et al. (2015)	AA	PA	AA	AA	WC	AA	WC	NR	PA	NR/AA	AA	AA	AA	PA	AA	R
Chang et al. (2016)	WC	PA	AA	AA	WC	WC	AA	NR	PA	AA	AA	AA	AA	AA	WC	R
Hébert et al. (2016)	WC	WC	WC	AA	WC	WC	WC	PA	NR	AA	PA	AA	AA	NR	AA	R
Hong et al. (2016)	WC	WC	AA	AA	WC	PA	NR	PA	PA	WC	AA	WC	WC	PA	WC	R
Katzer et al. (2009)	AA	PA	AA	AA	AA	AA	NR	WC	WC	AA	WC	AA	PA	PA	AA	VG
Khurana et al. (2015)	WC	WC	AA	AA	WC	WC	WC	WC	NR	WC	WC	AA	WC	AA	AA	VG
Martins et al. (2016)	WC	WC	AA	AA	WC	AA	NR	PA	PA	AA	AA	AA	WC	PA	AA	R
Mesch (2009)	WC	PA	AA	AA	WC	AA	PA	PA	NR	NR	AA	AA	WC	NR	PA	R
Navarro & Jasinski (2012)	WC	AA	AA	AA	WC	AA	PA	PA	NR	NC	WC	AA	AA	NR	AA	R

Quality Criteria																
Study	Rationale & research question	Aims & hypotheses	Design of study	Power	Population specified	Recruitment strategy	Response rate	Consistent measure & definition of CV	Measure of CV	Measure of parenting behaviour	Covariates controlled for	Statistical analysis	Results	Generalisability	Limitations	Overall quality rating
Park et al. (2014)	AA	PA	AA	AA	WC	AA	NR	PA	NC	NC	AA	AA	AA	AA	PA	R
Sanzone-Goodrich (2013)	WC	WC	AA	PA	AA	WC	NR	PA	AA	WC	PA	AA	PA	WC	AA	L
Sasson & Mesch (2016)	WC	WC	AA	PA	WC	AA	WC	NR	NR	AA	WC	WC	WC	NR	AA	R
Taiariol (2010)	WC	WC	AA	AA	WC	AA	PA	AA	NR	AA	NR	AA	WC	WC	AA	L
Wang et al. (2009)	WC	PA	AA	AA	WC	AA	WC	NR	NR	AA	AA	AA	AA	NR	AA	R
Yale (2013)	WC	AA	AA	PA	AA	AA	NR	NR	PA	AA	AA	AA	AA	PA	WC	L
Ybarra et al. (2007)	AA	PA	AA	PA	WC	AA	PA	AA	AA	AA	WC	WC	AA	AA	AA	R

Notes: WC= well considered, AA= adequately addressed, PA= poorly addressed, NR= not reported, NC = author confirmed criterion not consider
VG= very good, R= reasonable, L = limited (see Appendix 3 for details of overall quality ratings).

1.6 Discussion

The current review sought to establish whether positive parenting behaviours protect against CV during adolescence. Seven main parenting behaviours were identified through the review process; these were categorised into offline parenting behaviours and online parental mediation strategies. Overall the results were mixed, but there was more evidence to suggest that offline parenting behaviours were associated with a reduction in CV in comparison to online parental mediation strategies. Therefore offline parenting behaviours may help to protect against CV, although, the strength of associations were noted to be small. In addition, the results highlighted some variation in the quality of studies; the majority were rated to be of reasonable quality suggesting that conclusions may change in light of methodological improvements.

Across all of the parenting behaviours, the evidence consistently suggested that general monitoring offline reduced the likelihood of experiencing CV. The evidence for emotional availability/parental support was more mixed as some studies suggested that they were protective factors whereas others concluded that they were not significant predictors of CV. However, two out of the four studies which reported non-significant findings were underpowered. There was also limited evidence to suggest that offline parenting behaviours increased the risk of experiencing CV.

These findings are consistent with previous meta-analyses that indicated that offline parenting behaviours such as parental interaction (Chen et al., 2016) and perceived support from parents (Kowalski et al., 2014) were negatively associated with CV. Both reviews reported small effect sizes. The mechanisms through which these traditional approaches may buffer online risks remains unclear. However, developing a secure attachment style with a primary caregiver has been associated with greater social competence, which may reduce young people's risk of CV (Groh et al., 2014). Open communication with parents may lead to greater disclosure enabling parents to intervene and mitigate the effects of victimisation (Matsunaga, 2009). Alternatively, general monitoring and parental involvement could exert an indirect influence by encouraging interaction with appropriate peers (Tilton-Weaver, Burk, Kerr, & Stattin, 2013).

Five main online parental mediation strategies were identified. There was some inconsistency in the findings, but overall, the review indicated that these strategies did not predict CV in adolescence. This suggests that online mediation strategies in general neither increase nor reduce the likelihood of adolescents experiencing CV. This conclusion is inconsistent with findings from large scale studies which have assessed parental mediation in relation to a range of online risks such as negative user generated content, seeing sexual or violent images (Duerager & Livingstone, 2012). Livingstone et al. (2017) reported that restrictive mediation was associated with fewer risks whereas the other four strategies which enable young people's internet use were associated with greater exposure to online risks. The results of this review suggest that the protective nature of restrictive mediation may not hold true when you consider CV in isolation. It may be that adolescents are less likely to abide by rules which limit their use of social media compared to sites which display sexual or violent images, as the advantages of staying connected with peers outweighs the possible risk of experiencing CV.

In comparison to the other online parental mediation strategies, there was no evidence to suggest that either of the active mediation strategies reduced the risk of experiencing CV. This may fit with the hypothesis presented by Livingstone et al. (2017) that active mediation is an enabling strategy which encourages rather than limits young people's online activities, thereby increasing the likelihood of encountering online risks. Although, in the longer term, these strategies may be protective if they equip young people with the skills required to manage online risks through the promotion of online etiquette, problem solving and coping skills.

The review also aimed to determine which positive parenting behaviours were associated with a higher risk of CV; however, the evidence base is currently too limited to establish this. In addition, only one study assessed mediation through non-intervention; future research should aim to replicate this study to clarify whether non-intervention is a significant predictor of CV. Parents who take a non-intervention approach could also provide a valuable control group.

It is possible that parental mediation strategies may be more or less effective for a particular age group or gender. Mesch (2009) provided some evidence to support

this; when considering the sample as a whole the author concluded that technical mediation and some restrictive mediation strategies were not significant predictors of CV. However, upon further investigation gender differences became apparent with specific strategies reducing the risk of CV for boys but not girls. Nevertheless, as very few studies considered moderator variables within their statistical analysis, there was not enough evidence to draw any conclusions about the role of age or gender in this review.

Regarding the conceptualisation and assessment of CV, there was a clear disparity between what the studies claimed to measure and what the measures actually assessed. None of the measures used in the studies confidently assessed all four criteria commonly used to define CV. This suggested that the measures employed did not assess the concept of CV as it is defined within the literature. One could call into question whether the criteria used to define the parameters of CV, which was adapted from traditional bullying, is still relevant. However, many of the studies used at least some of these criteria when defining their variable of interest even though the instruments employed did not address these criteria. In addition, the four studies that claimed to measure online harassment fulfilled the same criteria as those that claimed to measure CV. Overall, there was little evidence to suggest that these studies were measuring distinct concepts. Determining whether a study met the criteria was hindered due to poor reporting in relation to the CV measures and the coding of CV. Given that none of the studies confidently met the criteria for CV, it may be more appropriate to conclude that this review has critically appraised the evidence base pertaining to online harassment rather than CV per se.

Aside from the limitations mentioned above, only one study analysed paternal and maternal behaviour separately. This area is worthy of further research as studies suggest there are gender differences in parenting (Brown, Craig, & Halberstadt, 2015; Craig, 2006) and boys and girls are treated differently (Raley & Bianchi, 2006). Triangulating data from multiple sources may also provide a more representative picture of young people's experiences of CV. In addition, the measures employed to assess CV and parenting behaviour lacked robust psychometric properties. Whilst this seems to be common place within the field of

CV, researchers need to give greater consideration to the measures they utilise. Numerous well-validated measures have been developed in recent years and Berne et al. (2012) provides a thoughtful review of this issue.

Limitations of the review

Parenting behaviours were assigned to one of seven categories by analysing the items included in each of the measures employed. Whilst careful consideration was given to this process, the wide variety of instruments and concepts under investigation led to some heterogeneity within each category. Furthermore, some studies used measures which contained items that were consistent with more than one type of parenting behaviour making them difficult to categorise.

Problematic parenting behaviours and more general variables associated with the family environment were excluded from this review. Whilst this resulted in a more focused research question, this review may have overlooked some important risk factors for CV within the family context. The conceptual variation of CV, differing time frames over which CV was assessed, the diverse range of measures and heterogeneity within parenting behaviour categories meant that the data was not sufficiently similar to carry out a meta-analytic review.

More than half of the studies in the review were conducted in the USA, therefore caution should be taken when considering whether these findings can be generalised to other populations. This is particularly pertinent as parenting practices vary across cultures (Bornstein, 2012) and cyberbullying behaviour is influenced by cultural context (Barlett et al., 2014). This review appraised online parenting strategies during a snapshot in time and with rapid technological advances, the results may not generalise to future online activities.

Implications

Parents should carefully consider whether to implement online parental mediation strategies in relation to CV. Parental resources may be better utilised by strengthening the parent-child relationship and monitoring a young person's behaviour offline in order to reduce the risk of CV. Professionals offering advice to

families should note the mixed findings in relation to online parental mediation strategies and be mindful that young people whose offline activities are not closely supervised by their parents may be at greater risk of experiencing CV. The findings of this review suggest that policy and psycho-educational material should highlight that strategies which may be effective in reducing exposure to online risks may not be applicable to CV.

Longitudinal studies which measure parental behaviour and CV at baseline and follow up are required to establish the effectiveness of parental behaviours as preventative strategies against CV. Greater consideration should also be given to determine moderating factors. Further attention needs to be given to the methodological limitations relating to the measurement of CV and the parameters of the concept. This field of research will be hampered without greater clarity and agreement regarding these issues. Previous systematic reviews by Berne et al. (2012) and Kowalski et al. (2014) highlighted these issues, but this review suggests that limited progress has been made to date.

Conclusions

The findings of the review suggest that offline parenting behaviours, particularly general monitoring, may reduce the risk of adolescents experiencing CV. The findings relating to five online parental mediation strategies were more mixed but overall, they did not seem to be significant predictors of CV. Professionals should consider promoting the use of general positive parenting techniques above online parental mediation strategies. Several methodological limitations were noted across studies, namely the inconsistency between how CV was defined and measured, a lack of psychometrically robust outcome measures and little consideration given to moderating variables. In this emerging field, future research should seek to clarify the relationship between online parental mediation strategies and CV.

1.7 References

- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16(5), 427–454. <http://doi.org/10.1007/BF02202939>
- Bäckström, M., & Holmes, B. M. (2001). Measuring adult attachment: A construct validation of two self-report instruments. *Scandinavian Journal of Psychology*, 42, 79–86.
- Barlett, C. P., Gentile, D. A., Anderson, C. A., Suzuki, K., Sakamoto, A., Yamaoka, A., & Katsura, R. (2014). Cross-cultural differences in cyberbullying behavior: A short-term longitudinal study. *Journal of Cross-Cultural Psychology*, 45(2), 300–313. <http://doi.org/10.1177/0022022113504622>
- Belsey, B. (2005). Cyberbullying: An emerging threat to the “always on” generation. Retrieved from http://www.inukshuk.com/pdf/Cyberbullying_Presentation_Description.pdf
- Benson, M. J., McWey, L. M., & Ross, J. J. (2006). Parental attachment and peer relations in adolescence: A meta-analysis. *Research in Human Development*, 3(1), 33–43. <http://doi.org/10.1207/s15427617rhd0301>
- Berne, S., Frisé, A., Schultze-Krumbholz, A., Scheithauer, H., Naruskov, K., Luik, P., ... Zukauskienė, R. (2012). Cyberbullying assessment instruments: A systematic review. *Aggression and Violent Behavior*, 18(2), 320–334. <http://doi.org/10.1016/j.avb.2012.11.022>
- Bohlin, G., Hagekull, B., & Rydell, A. (2000). Attachment and social functioning: A longitudinal study from infancy to middle childhood. *Social Development*, 9(1), 24–39. <http://doi.org/10.1111/1467-9507.00109>
- Bornstein, M. H. (2012). Cultural approaches to parenting. *Parenting, Science and Practice*, 12(2–3), 212–221. <http://doi.org/10.1080/15295192.2012.683359>

- Bossler, A. M., Holt, T. J., & May, D. C. (2012). Predicting online harassment victimization among a juvenile population. *Youth & Society*, 44(4), 500–523. <http://doi.org/10.1177/0044118X11407525>
- Brendgen, M., Girard, A., Vitaro, F., Dionne, G., & Boivin, M. (2016). Personal and familial predictors of peer victimization trajectories from primary to secondary school. *Developmental Psychology*, 52(7), 1103–1114. <http://doi.org/10.1037/dev0000107>
- Brochado, S., Soares, S., & Fraga, S. (2016). A scoping review on studies of cyberbullying prevalence among adolescents. *Trauma, Violence, & Abuse*, 1–9. <http://doi.org/10.1177/1524838016641668>
- Brown, G. L., Craig, A. B., & Halberstadt, A. G. (2015). Parent gender differences in emotion socialization behaviors vary by ethnicity and child gender. *Parenting*, 15(3), 135–157. <http://doi.org/10.1080/15295192.2015.1053312>
- Centers for Disease Control and Prevention. (2006). Youth risk behavior surveillance- United States, 2005. *Surveillance Summaries*, 55, 1–108.
- Centre for Reviews and Dissemination. (2009). Systematic reviews: CRD's guidance for undertaking systematic reviews in health care. Retrieved from <http://www.york.ac.uk/crd/SysRev/!SSL!/WebHelp/SysRev3.htm>
- Chang, F. C., Chiu, C. H., Miao, N. F., Chen, P. H., Lee, C. M., Chiang, J. T., & Pan, Y. C. (2015). The relationship between parental mediation and Internet addiction among adolescents, and the association with cyberbullying and depression. *Comprehensive Psychiatry*, 57, 21–28. <http://doi.org/10.1016/j.comppsy.2014.11.013>
- Chang, F. C., Miao, N. F., Chiu, C. H., Chen, P. H., Lee, C. M., Chiang, J. T., & Chuang, H. Y. (2016). Urban-rural differences in parental Internet mediation and adolescents' Internet risks in Taiwan. *Health, Risk & Society*, 18(3–4), 188–204.

- Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family Psychology, 17*(4), 598–606. <http://doi.org/10.1037/0893-3200.17.4.598>
- Chen, L., Ho, S. S., & Lwin, M. O. (2016). A meta-analysis of factors predicting cyberbullying perpetration and victimization: From the social cognitive and media effects approach. *New Media & Society, 19*(8), 1194–1213. <http://doi.org/10.1177/1461444816634037>
- Cheng, Y., Newman, I. M., Qu, M., Mbulo, L., Chai, Y., Chen, Y., & Shell, D. F. (2010). Being bullied and psychosocial adjustment among middle school students in China. *Journal of School Health, 80*(4), 193–199.
- Chng, G. S., Liao, A., Khoo, A., & Li, D. (2014). Parental mediation and cyberbullying-a longitudinal study. *Annual Review of Cybertherapy and Telemedicine, 12*(199), 98–102.
- Clark, L. S. (2011). Parental mediation theory for the digital age. *Communication Theory, 21*(4), 323–343. <http://doi.org/10.1111/j.1468-2885.2011.01391.x>
- Collier, K. M., Coyne, S. M., Rasmussen, E. E., Hawkins, A. J., Padilla-Walker, L. M., Erickson, S. E., & Memmott-Elison, M. K. (2016). Does parental mediation of media influence child outcomes? A meta-analysis on media time, aggression, substance use, and sexual behavior. *Developmental Psychology, 52*(5), 798–812.
- Craig, L. (2006). Does father care mean fathers share? A comparison of how mothers and fathers in intact families spend time with children. *Gender & Society, 20*(2), 259–281. <http://doi.org/10.1177/0891243205285212>
- Dooley, J. J., Pyżalski, J., & Cross, D. (2009). Cyberbullying versus face-to-face bullying. *Journal of Psychology, 217*(4), 182–188. <http://doi.org/10.1027/0044-3409.217.4.182>
- Duerager, A., & Livingstone, S. (2012). *How can parents support children's internet safety?* EU Kids Online, London, UK.

- Fanti, K. A., Demetriou, A. G., & Hawa, V. V. (2012). A longitudinal study of cyberbullying: Examining risk and protective factors. *European Journal of Developmental Psychology*, 9(2), 168–181.
<http://doi.org/10.1080/17405629.2011.643169>
- Feldman, M. A. (2012). *Cyber-bullying in high school: Associated individual and contextual factors of involvement* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses.
- Fischer, A., Fritzsche, Y., Fuchs-Heinritz, W., & Münchmeier, R. (2000). *Jugend 2000. 13. Shell jugendstudie [youth 2003 juveniles- the 13th Shell study on juveniles]*. Opladen, Germany: Leske und Budrich.
- Fisher, B. W., Gardella, J. H., & Teurbe-Tolon, A. R. (2016). Peer cybervictimization among adolescents and the associated internalizing and externalizing problems: A meta-analysis. *Journal of Youth and Adolescence*, 45(9), 1727–1743. <http://doi.org/10.1007/s10964-016-0541-z>
- Fridh, M., Lindström, M., & Rosvall, M. (2015). Subjective health complaints in adolescent victims of cyber harassment: Moderation through support from parents/friends- a Swedish population-based study. *BMC Public Health*, 15(1), 1–11. <http://doi.org/10.1186/s12889-015-2239-7>
- Gardella, J. H., Fisher, B. W., & Teurbe-Tolon, A. R. (2017). A systematic review and meta-analysis of cyber-victimization and educational outcomes for adolescents, 87(2), 283–308. <http://doi.org/10.3102/0034654316689136>
- Groh, A. M., Fearon, R. P., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., Steele, R. D., & Roisman, G. I. (2014). The significance of attachment security for children's social competence with peers: A meta-analytic study. *Attachment & Human Development*, 16(2), 103–36.
<http://doi.org/10.1080/14616734.2014.883636>
- Guo, S. (2016). A meta-analysis of the predictors of cyberbullying perpetration and victimization. *Psychology in the Schools*, 53(4), 432–453.
<http://doi.org/10.1002/pits.21914>

- Hasebrink, U., Görzig, A., Haddon, L., Kalmus, V., & Livingstone, S. (2011). *Patterns of risk and safety online: In-depth analyses from the EU Kids Online survey of 9- to 16-year olds and their parents in 25 European countries*. EU Kids Online. London.
- Hébert, M., Cénat, J. M., Blais, M., Lavoie, F., & Guerrier, M. (2016). Child sexual abuse, bullying, cyberbullying, and mental health problems among high schools students: A moderated mediated model. *Depression and Anxiety*, 33(7), 623–629. <http://doi.org/10.1002/da.22504>
- Hinduja, S., & Patchin, J. W. (2009). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Thousand Oaks, California: Corwin Press.
- Hong, J. S., Lee, J., Hunter, S. C., Patton, D. U., & Rivers, T. J. (2016). Understanding the correlates of face-to-face and cyberbullying victimization among U.S. adolescents: A social-ecological analysis, 31(4), 638–663.
- Katzer, C., Fetchenhauer, D., & Belschak, F. (2009). Cyberbullying: Who are the victims? A comparison of victimization in Internet chatrooms and victimization in school. *Journal of Media Psychology: Theories, Methods, and Applications*, 21(1), 25–36.
- Kerr, M., Stattin, H., & Burk, W. J. (2010). A reinterpretation of parental monitoring in longitudinal perspective. *Journal of Research on Adolescence*, 20(1), 39–64. <http://doi.org/10.1111/j.1532-7795.2009.00623.x>
- Khurana, A., Bleakley, A., Jordan, A. B., & Romer, D. (2015). The protective effects of parental monitoring and Internet restriction on adolescents' risk of online harassment. *Journal of Youth and Adolescence*, 44, 1039–1047.
- Kim, J., & Cicchetti, D. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 51(6), 706–716. <http://doi.org/10.1111/j.1469-7610.2009.02202.x>

- Kirwil, L. (2009). Parental mediation of children's internet use in different European countries. *Journal of Children and Media*, 3(4), 394–409.
<http://doi.org/10.1080/17482790903233440>
- Kirwil, L., Garmendia, M., Garitaonandia, C., & Martínez Fernández, G. (2009). Parental mediation. In S. Livingstone & L. Haddon (Eds.), *Kids online: Opportunities and risks for children* (pp. 199–216).
<http://doi.org/10.1332/policypress/9781847424396.001.0001>
- Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin*, 140(4), 1073–1137.
<http://doi.org/10.1037/a0035618>
- Ladd, G. W., & Pettit, G. S. (2002). Parenting and the development of children's peer relationships. In K. Crnic & C. Low (Eds.), *Handbook of parenting volume 5: Practical issues in parenting* (Vol. 5, pp. 269–310).
- Lenhart, A. (2015). Teens, social media & technology overview 2015. Retrieved from <http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/>
- Lereya, S. T., Samara, M., & Wolke, D. (2013). Parenting behavior and the risk of becoming a victim and a bully/victim: A meta-analysis study. *Child Abuse and Neglect*, 37(12), 1091–1108. <http://doi.org/10.1016/j.chiabu.2013.03.001>
- Lereya, S. T., & Wolke, D. (2013). Prenatal family adversity and maternal mental health and vulnerability to peer victimisation at school. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 54(6), 644–652.
<http://doi.org/10.1111/jcpp.12012>
- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011a). *Risks and safety on the internet: The perspective of European children. Full Findings*. LSE, London: EU Kids Online.

- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011b). *Technical report and user guide: The 2010 EU kids online survey*. LSE, London: EU Kids Online.
- Livingstone, S., & Helsper, E. J. (2008). Parental mediation of children's internet use. *Journal of Broadcasting & Electronic Media*, 52(4), 581–599.
<http://doi.org/10.1080/08838150802437396>
- Livingstone, S., Mascheroni, G., & Staksrud, E. (2017). European research on children's internet use: Assessing the past and anticipating the future. *New Media & Society*, 1–20. <http://doi.org/10.1177/1461444816685930>
- Lum, J. J., & Phares, V. (2005). Assessing the emotional availability of parents. *Journal of Psychopathology and Behavioral Assessment*, 27(3), 211–226.
<http://doi.org/10.1007/s10862-005-0637-3>
- Maguire, S. A., Williams, B., Naughton, A. M., Cowley, L. E., Tempest, V., Mann, M. K., ... Kemp, A. M. (2015). A systematic review of the emotional, behavioural and cognitive features exhibited by school-aged children experiencing neglect or emotional abuse. *Child: Care, Health and Development*, 41(5), 641–653. <http://doi.org/10.1111/cch.12227>
- Martins, M. J. D., Simão, A. M. V., Freire, I., Caetano, A. P., & Matos, A. (2016). Cyber-victimization and cyber-aggression among Portuguese adolescents: The relation to family support and family rules. *International Journal of Cyber Behavior, Psychology and Learning*, 6(3), 65–78.
- Matsunaga, M. (2009). *Bullied victims' coping via disclosure: A perspective on communication and interpersonal relationships* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses.
- Mesch, G. S. (2009). Parental mediation, online activities, and cyberbullying. *CyberPsychology & Behavior*, 12(4), 387–393.

- Mishna, F., Saini, M., & Solomon, S. (2009). Ongoing and online: Children and youth's perceptions of cyber bullying. *Children and Youth Services Review*, 31(12), 1222–1228. <http://doi.org/10.1016/j.childyouth.2009.05.004>
- Moore, S. E., Norma, R. E., Suetani, S., Thomas, H. J., Sly, P. D., & Scott, J. G. (2017). Consequences of bullying victimization in childhood and adolescence: A systematic review and meta-analysis. *World Journal of Psychiatry*, 7(1), 60–76.
- Morris, P. (2015). Introduction to systematic reviews. [Powerpoint slides]. Retrieved from <https://www.learn.ed.ac.uk/>.
- Nathanson, A. I., Wilson, B. J., McGee, J., & Sebastian, M. (2002). Counteracting the effects of female stereotypes on television via active mediation. *Journal of Communication*, 52(4), 922–937. <http://doi.org/10.1093/joc/52.4.922>
- Navarro, J. N., & Jasinski, J. L. (2012). Going cyber: Using routine activities theory to predict cyberbullying experiences. *Sociological Spectrum*, 32, 81–94. <http://doi.org/10.1080/08974454.2013.784225>
- O'Neill, B., & McLaughlin, S. (2010). *Recommendations on safety initiatives*. LSE, London: EU Kids Online.
- Olweus, D. (1999). Sweden. In P. K. Smith, Y. Morita, J. Junger-Tas, D. Olweus, R. Catalano, & P. Slee (Eds.), *The nature of school bullying: A cross-national perspective* (pp. 2–27). London: Routledge.
- Padilla-Walker, L. M., Coyne, S. M., Fraser, A. M., Dyer, W. J., & Yorgason, J. B. (2012). Parents and adolescents growing up in the digital age: Latent growth curve analysis of proactive media monitoring. *Journal of Adolescence*, 35(5), 1153–1165. <http://doi.org/10.1016/j.adolescence.2012.03.005>
- Pallini, S., Baiocco, R., Schneider, B. H., Madigan, S., & Atkinson, L. (2014). Early child-parent attachment and peer relations: A meta-analysis of recent research. *Journal of Family Psychology*, 28(1), 118–23. <http://doi.org/10.1037/a0035736>

- Park, S., Na, E. Y., & Kim, E. M. (2014). The relationship between online activities, netiquette and cyberbullying. *Children and Youth Services Review*, 42, 74–81. <http://doi.org/10.1016/j.chidyouth.2014.04.002>
- Parker, G., Tupling, H., & Brown, L. B. (1979). A parental bonding instrument. *British Journal of Medical Psychology*, 52(1), 1–10. <http://doi.org/10.1037/t06510-000>
- Raley, S., & Bianchi, S. (2006). Sons, daughters, and family processes: Does gender of children matter? *Annual Review of Sociology*, 32(1), 401–421. <http://doi.org/10.1146/annurev.soc.32.061604.123106>
- Sanzone-Goodrich, M. (2013). *Cyberbullying, self concept, and perceived parental emotional availability in adolescents* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses.
- Sasson, H., & Mesch, G. (2016). The role of parental mediation and peer norms on the likelihood of cyberbullying. *The Journal of Genetic Psychology*, 0, 1–13. <http://doi.org/10.1080/00221325.2016.1195330>
- Schenk, A. M., & Fremouw, W. J. (2012). Prevalence, psychological impact, and coping of cyberbully victims among college students. *Journal of School Violence*, 11(1), 21–37. <http://doi.org/10.1080/15388220.2011.630310>
- Small, S. A., & Kerns, D. (1993). Parental monitoring scale. *Journal of Marriage and the Family*, 55, 941–952.
- Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus bully/victim questionnaire. *Aggressive Behavior*, 29(3), 239–268. <http://doi.org/10.1002/ab.10047>
- Stavriniades, P., Nikiforou, M., & Georgiou, S. (2014). Do mothers know? Longitudinal associations between parental knowledge, bullying, and victimization. *Journal of Social and Personal Relationships*, 32(2), 1–17. <http://doi.org/10.1177/0265407514525889>

- Taiariol, J. (2010). *Cyberbullying: The role of family and school* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses.
- Tilton-Weaver, L. C., Burk, W. J., Kerr, M., & Stattin, H. (2013). Can parental monitoring and peer management reduce the selection or influence of delinquent peers? Testing the question using a dynamic social network approach. *Developmental Psychology*, 49(11), 2057–2070.
<http://doi.org/10.1037/a0031854>
- Tokunaga, R. S. (2010). Following you home from school: A critical review and synthesis of research on cyberbullying victimization. *Computers in Human Behavior*, 26(3), 277–287. <http://doi.org/10.1016/j.chb.2009.11.014>
- Wang, J., Iannotti, R. J., & Nansel, T. R. (2009). School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *Journal of Adolescent Health*, 45, 368–375.
- Wolak, J., Mitchell, K., & Finkelhor, D. (2006). *Online Victimization of Youth: Five Years Later*. National Center for Missing & Exploited Children Bulletin - #07-06-025. Alexandria, VA.
- Wolak, J., Mitchell, K. J., & Finkelhor, D. (2007). Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts. *Journal of Adolescent Health*, 41(6), S51-8.
- Yale, E. A. (2013). *Parental monitoring and adolescent information management: Associations with cyber risks* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses.
- Ybarra, M. L., Diener-West, M., & Leaf, P. J. (2007). Examining the overlap in Internet harassment and school bullying: Implications for school intervention. *Journal of Adolescent Health*, 41, S42–S50.
- Ybarra, M. L., & Mitchell, K. J. (2004). Online aggressor/targets, aggressors, and targets: A comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 45(7), 1308–1316.

Chapter 2: Empirical Study¹

2.1. Title Page

Childhood Maltreatment and Online Victimisation in an Adolescent Sample: The Mediating Role of Attachment and Risky Electronic Communication

Cara Griffiths^{a,b*}, Dr Ethel Quayle^a, Dr Angus MacBeth^{a,c} and Dr Caroline Smith^{b,2}

^a School of Health in Social Science, University of Edinburgh, Medical School, Teviot Place, Edinburgh, EH8 9AG, Scotland

^b NHS Grampian, Child and Adolescent Mental Health Service, The Rowan Centre, Elgin, IV30 6GQ, Scotland

^c NHS Grampian, Royal Cornhill Hospital, Aberdeen, AB25 2ZH, Scotland

*Corresponding author email address: cara.griffiths@nhs.net

¹Produced in accordance with submission guidelines of Child Abuse & Neglect (see Appendix 1)

² Current address: NHS Tayside, Child and Adolescent Mental Health Service, The Centre for Child Health, 19 Dudhope Terrace, Dundee, DD3 6HH

2.2 Abstract

As the internet evolves, digital media offers young people greater opportunities to engage with others. However, these social affordances also expose young people to risks such as online victimisation. Previous research has suggested that some young people, particularly those with a history of childhood maltreatment, may be vulnerable to experiencing online victimisation. This study aimed to investigate whether childhood maltreatment is associated with online victimisation in an adolescent sample. The role of attachment insecurity and risky electronic communication were examined as possible mediators of this relationship. This cross-sectional study recruited 123 students, aged 12-16, from a remote, rural part of Scotland. Participants completed five self-report questionnaires assessing electronic media use, experiences of childhood maltreatment, attachment, risky electronic communication and online victimisation. The prevalence of self-reported childhood maltreatment in this sample was high with 47% experiencing at least one maltreatment subtype. Mediation analyses showed that attachment anxiety partially mediated the relationship between childhood maltreatment and online victimisation. However, neither attachment avoidance nor risky electronic communication mediated this relationship. Childhood maltreatment and risky electronic communication were significant predictors of online victimisation, indicating that these factors heighten adolescents' risk of experiencing victimisation online. Understanding the role of attachment insecurity may help to develop novel prevention programmes specifically targeting adolescents with a history of maltreatment. Future research should consider mapping the specific pathways between the maltreatment subtypes and the various forms of online victimisation.

Key words: Online victimisation, childhood maltreatment, attachment, adolescent

2.3 Introduction

Digital technology has become embedded in the lives of young people. In the UK, it is estimated that adolescents aged 12-15 spend over 20 hours each week online (Ofcom, 2016); a figure which has steadily risen since 2007. The internet affords young people greater social opportunities to connect with peers, share information and to belong to an online community. Although, young people are not passive receivers of digital media (van Dijck, 2009) and the opportunities afforded by the internet can be misused.

Smith et al. (2008) defines cyberbullying as ‘an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself’ (p.376). A large scale study revealed that the prevalence of cyberbullying amongst 11-16 years olds had increased by 4% over 4 years. In total, 12% of youth across 25 European countries reported experiences of cyberbullying (Livingstone, Mascheroni, Ólafsson, & Haddon, 2014). Another widely cited concern for youth online, which is thought to co-occur with cyberbullying, is unwanted sexual solicitation by adults and peers. This involves encouraging youth to engage in sexual acts, to talk about sex or share sexual information against their will (Jones, Mitchell, & Finkelhor, 2012). In a sample of 1588 adolescents, Ybarra, Espelage, & Mitchell (2007) noted that the majority of young people who reported involvement in unwanted sexual solicitation, as either perpetrators or victims, were also involved in online harassment. Online harassment refers to an overt, aggressive act which intentionally targets an individual online (Ybarra & Mitchell, 2004). In comparison, it was relatively rare to experience unwanted sexual solicitation in the absence of other forms of online victimisation.

Livingstone (2013) highlighted that exposure to online risks does not always result in harm. However, two recent meta-analyses reported small to moderate associations between being a victim of cyberbullying and a series of internalising and externalising difficulties amongst adolescents (Fisher, Gardella, & Teurbe-Tolon, 2016; Kowalski, Giumetti, Schroeder, & Lattanner, 2014). Both studies demonstrated that cyber-victims (i.e. young people who have been victimised by

cyber-bullying) report significantly greater suicidal ideation than non-victims, as well as elevated levels of depression, anxiety, substance use and lower self-esteem. Although, these meta-analyses relied upon cross-sectional data therefore cause and effect cannot be determined.

In a large scale UK study, Fahy et al. (2016) found that cyber-victims were almost 1.5 times more likely to experience symptoms of depression and social anxiety at one year follow up, compared to adolescents who were not involved in cyber-victimisation, even when controlling for baseline mental health difficulties. These results suggest that cyber-victimisation is a risk factor for mental health difficulties during adolescence. Although, it was not possible to determine whether cyber-victimisation was a unique predictor of psycho-social difficulties and problematic behaviour as this study did not control for other types of peer victimisation.

Kowalski et al. (2014) concluded that studies need to account for the effects of concurrent traditional victimisation, otherwise the impact of cyber-victimisation may be inflated. Furthermore, this relationship seems to be reciprocal as a growing body of research suggests that offline psychosocial vulnerabilities (such as low self-esteem, experiences of childhood maltreatment and psychological difficulties) are associated with greater exposure to online risks (Livingstone & Smith, 2014; Wells & Mitchell, 2008; Whittle, Hamilton-Giachritsis, Beech, & Collings, 2013).

Childhood maltreatment and online victimisation

Maltreatment in childhood, such as experiencing abuse or neglect, is associated with a greater risk of maltreatment in future (Desai, Arias, Thompson, & Basile, 2002; Finkelhor, Ormrod, & Turner, 2007; Roodman & Clum, 2001). These early experiences may explain subsequent vulnerability and researchers have begun to investigate whether the risk of re-victimisation may extend online. Online victimisation refers to victimisation carried out via electronic means (such as the internet or a mobile phone) and may include derogatory or hurtful remarks, images or acts which amount to online harassment, and unwanted contact of a sexual or offensive nature (Tynes, Rose, & Williams, 2010).

Mitchell, Finkelhor and Wolak (2007) reported that young people who had been physically or sexually abused during childhood were eight times more likely to

experience sexual solicitation online involving requests for offline contact. Similarly, a large scale study conducted in Denmark, involving over 3500 adolescents aged 14-17, reported a strong association between experiences of physical and sexual abuse and being sexually solicited or harassed online (Helweg-Larsen, Schutt, & Larsen, 2012). Although the evidence is preliminary, these studies suggest that young people with a history of childhood maltreatment may be more vulnerable to maltreatment through online interpersonal relationships. An additional consideration is whether a young person's interactions online may compound this vulnerability; Noll, Shenk, Barnes and Haralson (2013) reported that adolescents who experienced childhood maltreatment were more likely to display provocative profiles on social media sites and be subjected to online sexual advances. In turn, these factors predicted whether young people engaged in offline encounters with people whom they were unacquainted, potentially placing them at risk of further harm. In summary, there is some evidence for a direct relationship between experiences of childhood maltreatment and victimisation through electronic media. In addition, this relationship may be mediated by risk taking behaviour that young people engage in when communicating online. However, this is an under-researched area, with studies having mainly focused on specific types of maltreatment and their association with online sexual solicitation.

Risky electronic communication

Risky electronic communication refers to communication via electronic devices which may place the user at greater risk of online victimisation such as sharing personal information, sharing passwords or explicit images. Some young people may be more vulnerable to experiencing online risks because of the way they interact online. Cyber-victims tend to be more frequent internet users and use social media more intensely than non-victims (Chen, Ho, & Lwin, 2016; Smith et al., 2008). However, specific behaviours exhibited during internet-mediated communication are thought to predict online victimisation. For example, Ybarra, Mitchell, Finkelhor and Wolak (2007) found that young people who make hurtful comments, frequently embarrass others or talk about sex online with people they do not know offline, were more likely to experience harassment or unwanted sexual solicitation. Several studies

have also shown that disclosing personal information and sharing passwords were associated with cyber-victimisation (Doane, Boothe, Pearson, & Kelley, 2016; Kowalski et al., 2014; Walrave & Heirman, 2011). In contrast, Ybarra et al. (2007) reported that disclosing personal information online was not associated with increased risk of online victimisation after accounting for the number of online risky behaviours a young person engages in. Although this study is somewhat dated, it suggests that online victimisation may be more effectively explained by considering patterns of risky electronic communication rather than isolating individual risk behaviours.

Research has also demonstrated a link between childhood maltreatment and a greater propensity for risk taking behaviour in adolescence (Ellis & Wolfe, 2009; Oshri, Sutton, Clay-Warner, & Miller, 2015). Within the online environment, this may translate into risky communication practices, thereby potentially placing young people with a history of childhood maltreatment at greater risk of online victimisation. Noll et al. (2013) identified that childhood maltreatment was a unique risk factor for risky behaviour and risky interactions online. The authors postulate that maltreatment may disrupt cognitive, affective and behavioural processes which enable an individual to read social cues, perceive threat and respond effectively to high risk situations (Noll & Grych, 2011). This theory may explain why adolescents with a history of childhood maltreatment are more vulnerable to online victimisation than others.

The role of attachment

Another plausible psychological mediator in the relationship between childhood maltreatment and online victimisation is attachment. Attachment can be conceptualised as a set of innate behaviours which aim to promote proximity to the primary caregiver and elicit care (Bowlby, 1977). If a caregiver is consistently warm and attuned to a child's needs, then the infant develops a sense of security. Over time this behavioural system evolves; an infant's early caregiving experiences are internalised leading to the development of mental representations of the self and others. These cognitive models represent an individual's expectations of how worthy they are of receiving love and the availability of others (Bowlby, 1973). Children are

less likely to develop a sense of security if their caregiver is rejecting, provides inconsistent care, or responds in an unpredictable manner (Bowlby, 1969). Childhood maltreatment may therefore disrupt the attachment process and place a child at greater risk of attachment insecurity (Earls, 2010).

For adolescents who have experienced abuse and high family conflict, the online environment provides them with an additional social platform to forge close relationships. However, adolescents who exhibit higher levels of attachment insecurity may be more vulnerable to experiencing online victimisation because of the expectations they hold and their pattern of relating to others. The mental representations of the self and others act as a filter, influencing how information in social situations is processed (Davis et al., 2014; Thompson & Raikes, 2003). The quality of the parent-child relationship therefore provides a blue print for later peer relationships and may guide future social interaction (Pallini, Baiocco, Schneider, Madigan, & Atkinson, 2014).

The two attachment dimensions which underpin significant relationships, model of self and model of other, may provide a useful framework to explore how attachment may mediate the relationship between child maltreatment and online victimisation (Bartholomew & Horowitz, 1991). Attachment anxiety (negative model of self) is characterised by a strong desire for closeness in relationships, doubt about ones self-worth and desirability as a partner, whereas attachment avoidance (negative model of others) is characterised by discomfort depending on people, avoiding closeness within relationships and managing this discomfort by maintaining a sense of independence and self-reliance. A child with high levels of attachment avoidance believes that others are untrustworthy and may present as shy and withdrawn; such behaviour may place them at greater risk of rejection and social isolation (Dykas, Ziv, & Cassidy, 2008). However, in the online world, maintaining an emotional distance from individuals may protect the self, therefore reducing the likelihood of experience victimisation.

In contrast, a child with high levels of attachment anxiety believes that they are less worthy of receiving love and attention may expect to be rejected by their peers and work hard to please others (Feldman & Downey, 1994). In the online environment, this may result in adolescents engaging in risky patterns of communication in order

to gain the acceptance of others. Such vulnerabilities are likely to place young people at greater risk of victimisation.

The association between the quality of parent-child relationships and being a victim of traditional bullying has been noted in some recent studies. Walden and Beran (2010) reported that children with insecure attachment were more likely to be victims and perpetrators of bullying compared to children with a more secure attachment style. Williams and Kennedy (2012) analysed the correlation between the two attachment dimensions and traditional peer victimisation amongst university students. The researchers reported that higher levels of attachment anxiety in the maternal relationship was a significant predictor of traditional victimisation, although further analyses revealed that this was only true for females. To the author's knowledge, research has not considered whether these findings would be replicated online, and specifically whether attachment may mediate the relationship between childhood maltreatment and online victimisation in adolescence.

Rationale for the study

Childhood maltreatment heightens the risk of re-victimisation in later life, but to date few studies have investigated whether this risk translates online. An adolescent sample is of particular interest as an essential task of adolescence is developing one's identity and individuating from the family system (Carr, 2015). During this developmental stage, peer relationships acquire greater significance and young people begin to explore sexual relationships; therefore online communication may supplement offline peer interaction as well as provide additional opportunities to develop new relationships. Secondly, a large proportion of adolescents have access to the internet enabling them to spend more time communicating electronically than younger children (Ofcom, 2016). Previous research has indicated a positive correlation between the amount of time spent online and the risks that young people encounter (Guo, 2016; Livingstone & Helsper, 2010). In addition, parental monitoring of young people's activities online is becoming increasingly difficult as electronic devices are becoming more portable and personal ownership of devices continues to rise (Haddon & Vincent, 2014). These factors may explain why adolescents are at greater risk of online victimisation compared to other age groups.

As this area of research is in its infancy and this study was exploratory in nature, a normative sample rather than a clinical sample was chosen. Rates of maltreatment tend to be higher in clinical samples compared to the general population (MacDonald et al., 2016) and current mental health difficulties would likely be a confounding variable in the hypothesised mediation models. Therefore by using a normative sample, this study aimed to establish preliminary evidence for the mediation models and to provide a baseline for comparison with clinical samples in future research. Although research has indicated that early adverse experiences such as childhood maltreatment is strongly linked to disorganised attachment, given that a normative sample was used, it was anticipated that relatively low levels of maltreatment would be reported and only a minority of participants would be classified as having a disorganised style of attachment. Therefore this study focused on the link between childhood maltreatment and insecure attachment, rather than disorganised attachment.

There is some evidence to suggest that both attachment and risky electronic communication may play a role in the relationship between childhood maltreatment and online victimisation in adolescence and early adulthood (Drouin & Tobin, 2014). In this emerging field of research, clarifying which factors are associated with online victimisation may provide greater insight into vulnerabilities to online risks. This may support the implementation of preventative measures and more effective, targeted interventions to improve the safety of youth using electronic media.

The principal hypothesis for this study was that childhood maltreatment would be associated with online victimisation in adolescence. In addition, it was hypothesised that the dimensions of attachment insecurity (attachment avoidance and attachment anxiety) would individually mediate the relationship between childhood maltreatment and online victimisation. It was anticipated that attachment anxiety would predict higher levels of online victimisation, whereas attachment avoidance would predict lower levels of online victimisation. Finally, risky electronic communication was hypothesised to mediate the relationship between childhood maltreatment and online victimisation.

2.4 Methods

Design

A cross-sectional design was employed using a school-based population in a remote, rural part of Scotland. Five self-report questionnaires were administered at one time point.

Participants

Students aged 12-16 were recruited from three secondary schools between October and December 2016. Participants were required to be attending mainstream secondary education and to be able to read and understand English. Students with an intellectual disability were excluded due to the level of literacy required to understand the participant information sheets, provide informed consent and independently complete the questionnaires. Students with a diagnosed autistic spectrum disorder (ASD) were also excluded; as this condition is characterised by difficulties in social understanding and communication, this may have influenced how they responded to questions about their experience of online victimisation.

165 students were invited to participate in the study; 17 students were absent when the questionnaires were administered and a further 17 students declined to take part. In addition, 6 opt-out forms were received and two students withdrew prior to completing the questionnaires. The response rate was 74.5%.

Procedure

A favourable ethical opinion was provided by the School of Humanities and Social Sciences Research Ethics Committee at The University of Edinburgh (see Appendices 6 & 8). The local authority provided permission for secondary schools in the local area to be approached (see Appendix 7) and permission was granted by NHS Grampian Research & Development for data to be stored on NHS premises (see Appendix 9).

Three schools were contacted; all three agreed to participate. Approval was given by the Head Teachers to invite students to participate and meetings were arranged with

guidance staff to discuss the feasibility of the research project. Teacher information sheets were provided.

Guidance staff selected classes on the basis that students were competent to consent to participate in the research. The researcher met with participants during two Personal & Social Education (PSE) lessons. Participant information sheets were provided during the initial meeting. As all participants were under the age of 16, parent/carer information sheets and opt-out forms were also provided. A minimum of 2 weeks was allowed between the initial meeting and the administration of questionnaires, to facilitate the return of opt-out forms and allow students time to consider whether they would like to participate. Guidance teachers collected opt-out forms and students who decided not to take part were provided with an alternative task. Questionnaires were completed during the second PSE lesson. In order to ensure anonymity, written consent to participate was not sought. Instead participants were notified that by completing and returning the questionnaire, they were providing their consent to participate and for their data to be used in future research reports. This was also written at the top of the first questionnaire. All participants were reminded that they could withdraw their information prior to handing in the completed questionnaires and that their participation was voluntary. Participants were debriefed following data collection; they were encouraged to contact their guidance teacher if they experienced an adverse response to participation. Written information about internet safety and how to access support services was also provided.

Measures

Demographic & Electronic Media Questionnaire

Demographic information including gender, age and ethnicity was collected. Information regarding mental health difficulties and additional support needs was also requested. The remainder of the questionnaire collected information about electronic media use such as the type and frequency of online activities. This questionnaire was adapted from the research toolkit provided by 'EU Kids Online' (available from www.eukidsonline.net).

Childhood Trauma Questionnaire (CTQ-SF; Bernstein et al., 2003)

The CTQ-SF is a 28 item self-report measure which collects information about traumatic experiences during childhood. It assesses five types of childhood maltreatment: physical abuse, sexual abuse, emotional abuse, physical neglect and emotional neglect. Individuals respond to statements about childhood events using a 5-point Likert scale ranging from *never true* to *very often true*. The measure includes three items used to detect denial or minimisation of maltreatment. A total score can be calculated from the five subscales, with higher scores indicating greater severity of childhood maltreatment. The measure has been validated for use with adolescents (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997) and has shown good internal consistency and criterion-related validity (Bernstein et al., 2003). The Guttman split-half reliability coefficient for the current study was .81, indicating that the internal consistency of the measure was adequate.

The Adolescent Relationship Scales Questionnaire (A-RSQ; E. Scharfe, personal communication, 17 October 2016)

The A-RSQ provides a continuous measurement of two attachment dimensions which underpin significant relationships. The 17 item self-report questionnaire was adapted from the Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994) for use with adolescents. Participants respond to statements using a 7-point Likert scale ranging from (1) *not at all like me* to (7) *very much like me*. Following the guidance provided by Scharfe (see http://people.trentu.ca/~escharfe/index_files/Page791.htm), scores from the A-RSQ were used to derive the two underlying attachment dimensions; self model and other model. First, the sum of the item scores corresponding to the four attachment prototypes; secure, dismissing, fearful and preoccupied, were calculated and then the two attachment dimensions were calculated using the following equations.

Self model = (secure + dismissing) minus (fearful + preoccupied)

Other model = (secure + preoccupied) minus (fearful + dismissing)

Lower scores on the self model indicated greater attachment anxiety. Attachment anxiety is the extent to which a person believes that they are worthy of receiving love and support from others. Lower scores on the other model indicated greater attachment avoidance. Attachment avoidance is the extent to which an individual expects others to be trustworthy and supportive. High levels of either attachment avoidance or attachment anxiety indicate greater attachment insecurity (Bartholomew & Horowitz, 1991). A continuous measurement of attachment using the two-dimensional model was chosen as it has shown greater precision and reliability compared to categorical assignment of adult attachment patterns. More specifically, when a young person falls into a combination of attachment categories, attachment dimensions can still be reliably rated (Scharfe, 2002). It is not possible to determine the reliability of the two attachment dimensions as they are calculated using scale scores rather than individual item scores; instead, Cronbach's alpha scores for the attachment style subscales were calculated revealing that the internal consistency of the scales were poor: secure (.16), preoccupied (.55), fearful (.66) and dismissing (.60).

Bäckström and Holmes (2001) assessed the reliability of the attachment categories of the RSQ. Although the researchers found the preoccupied ($\alpha=.46$) and secure ($\alpha=.32$) patterns to have low internal consistency, the fearful ($\alpha=.79$) and dismissing ($\alpha=.64$) Cronbach's α values were more acceptable. A moderate association has been reported between the A-RSQ and coded attachment interviews, suggesting reasonable convergent validity (Scharfe, 2002).

Cyberbullying Experiences Survey (CES; Doane, Kelley, Chiang, & Padilla, 2013)

Experiences of online victimisation in the last 12 months were measured using the victimisation scale of the CES. The 21 item self-report scale measures how frequently victimisation has occurred via electronic communication. Electronic communication refers to any communication which occurs online (e.g. via social networking sites, instant messaging applications, email etc.) and includes text and picture messaging on a mobile phone.

The scale consists of four factors: malice (5 items; “How often has someone called you mean names?”), public humiliation (9 items; “how often has someone posted an embarrassing picture of you where other people can see it?”); deception (3 items; “how often has someone pretended to be someone else while talking to you?”) and unwanted contact (4 items; “how often have you received a sexual message that you did not want from someone?”). Each item is rated on a 6-point scale ranging from *never* to *every day or almost every day*. Higher scores reflected more frequent experiences of online victimisation.

This survey was originally developed for use with undergraduate students. With the author’s permission, the wording of some items and the instructions were altered to ensure that it was accessible to younger adolescents (A. Doane, personal communication, 31st May 2016). Feedback was sought from six young people aged 11-15 and further adjustments were made to improve its readability. The original CES Victimisation scale has demonstrated moderate convergent validity with other online victimisation scales (Doane et al., 2013). The internal consistency for the CES Victimisation scale was shown to be excellent in this study ($\alpha = .90$).

Risky Electronic Communication Behaviour Questionnaire (Doane et al., 2016)

As a standardised, validated measure has yet to be published which assesses risky electronic communication behaviour, a recently compiled 7 item survey was adapted for use with adolescents. The wording of some items was simplified and the instructions were altered following feedback from six young people aged 11-15 regarding the accessibility and readability of the survey. Using a 7-point scale, respondents were asked to indicate how often they have engaged in risky electronic communication behaviours in the last 12 months; *never* (0), *less than a few times a year* (1), *a few times a year* (2), *once or twice a month* (3), *once or twice a week* (4), *every day or almost every day* (5), *I don’t use electronic communication* (6). *I don’t use electronic communication* was treated as missing data, but none of the participants provided this response. The content of the 7 items were drawn from the recent literature; items assessed the frequency of sharing personal information and sharing passwords, communication with individuals whom they were unacquainted with offline, sharing images and videos of themselves, as well as the distribution of

nude images or videos. In the original study, Doane et al. (2016) reported the internal consistency of the survey to be acceptable ($\alpha = .64$). Similarly, the Cronbach's alpha for the questionnaire in this study was adequate ($\alpha = .65$).

Statistical analyses

Previous research suggested that a medium effect size could be assumed for the relationship between childhood maltreatment and attachment and a half-way effect size for the relationship between attachment and online victimisation. Few studies have investigated the relationship between childhood maltreatment and risky online communication, however, a half-way effect size seemed to be an adequate estimation based on recent studies. A medium effect size was assumed for the relationship between risky electronic communication and online victimisation. The bias-corrected bootstrap test of mediation was chosen as it does not assume normality of the sampling distribution and it corrects for skew in the data (Hayes, 2013). Fritz and Mackinnon (2007) published guidelines on sample size requirements in order to detect the mediated effect. Based upon the above estimated effect sizes, the guidelines indicated that a sample of 116 participants would be required to achieve power of 0.8 when using the bias-corrected bootstrap test of mediation.

Questionnaires were completed and returned by 123 participants. Data was analysed using IBM Statistical Package for Social Sciences (SPSS) Version 22 (IBM Corp, 2013). Little's MCAR test showed that across the entire dataset missing data was missing completely at random which enabled the seven participants who did not complete the CTQ-SF to be removed. 116 participants remained and there was 1.39% missing data across the dataset. Downey and King (1998) suggest that item mean substitution preserve the representativeness of data in Likert scales if the number of missing data points is less than 20%. As the percentage of missing data across each of the questionnaires was very low, series mean substitutions were conducted for all missing data points except for the socio-demographic variables.

The sampling distribution of the variables of interest were assessed for normality. Values of skewness, kurtosis and standard errors were computed and converted into standardised z -scores as recommended by Field (2013). Seven out of nine of the

main variables produced a skewness z-score and/or kurtosis z-score greater than 1.96 (see Appendix 10) indicating that the sampling distribution of the data was not normally distributed therefore non-parametric statistical tests were employed.

Due to the low number of responses in the original categories, gender groups were reduced from 5 groups to 3, so that young people who responded saying they *would rather not say, neither* or specified another gender were re-coded as not specifying their gender as male or female.

2.5 Results

Sample characteristics

Data were analysed from 116 participants (mean age= 14.20, SD= 0.99). 53.4% of participants identified as female; 41.4% identified as male and 5.2% did not identify as either male or female. The sample included 74.1% White Scottish, 15.5% White Other British, 4.3% other White background, 2.6% any mixed background, 0.9% any other Asian Background and 0.9% any other ethnic background. Two participants did not specify their ethnic group. In addition, 12.1% of young people reported that they had received mental health treatment and 2.6% received additional support for learning.

Reliability of the CES Victimisation scale

Exploratory factor analysis (EFA) was conducted to determine whether the amended CES Victimisation scale measured the same underlying constructs as reported by Doane et al. (2013). A generalised least squares factor analysis was conducted on the 21-item scale with oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin measure indicated the sampling adequacy for the analysis, KMO = .839. However, over half of the KMO values for individual items fell below the acceptable limit of .5 (Field, 2013). During the initial analysis, five factors had eigenvalues over Kaiser's criterion of 1. The scree plot indicated one clear factor. The factor matrix displayed four factors, which explained 51.82% of the variance. However, the goodness of fit test was not significant $\chi^2(132) = 151.57, p > .1$. The analysis suggested that the factor structure of the survey was not representative of the factors identified in the

original scale. However, the sample size for this study was lower than recommended when undertaking EFA (Tabachnick & Fidell, 2001). As the original factor structure of the scale could not be replicated with this sample, a total scale score was calculated which was equivalent to a one-factor solution.

Descriptive statistics

Descriptive statistics for the main variables were calculated (refer to Table 1).

Table 1. Means, Standard Deviations and Range for Main Study Variables

Variable	Mean (SD)	Range
Childhood maltreatment	32.90 (8.20)	25 – 64
Attachment anxiety	1.20 (2.59)	-4.95 – 7.70
Attachment avoidance	0.41 (2.50)	-5.97 – 5.95
Risky electronic communication	7.70 (5.31)	0 – 30
Online victimisation	15.40 (12.04)	0 – 56

Scores for the CTQ subscales were calculated and cut-off scores recommended by Bernstein and Fink (1998) were applied to determine the prevalence of childhood maltreatment reported in this sample. Table 2 indicates that the most prevalent types of maltreatment in this sample were emotional abuse and emotional neglect. Overall, 47.4% of the sample reported that they had experienced one or more of the maltreatment subtypes and 28.4% of respondents reported experiencing maltreatment within the moderate to extreme range for at least one maltreatment subtype. However, 60.3% of the sample endorsed at least one of the denial and minimisation items of the CTQ suggesting that participants may have under-reported their experiences of childhood maltreatment.

Table 2. Prevalence of Childhood Maltreatment

Maltreatment subtype	Overall prevalence %	Minimal N (%)	Low to moderate N (%)	Moderate to severe N (%)	Severe to extreme N (%)
Emotional abuse	26.7	85 (73.3)	15 (12.9)	9 (7.8)	7 (6)
Physical abuse	7.7	107 (92.2)	5 (4.3)	4 (3.4)	0 (N/a)
Sexual abuse	8.7	106 (91.4)	1 (0.9)	6 (5.2)	3 (2.6)
Emotional neglect	22.4	90 (77.6)	20 (17.2)	5 (4.3)	1 (0.9)
Physical neglect	17.2	96 (82.8)	11 (9.5)	5 (4.3)	4 (3.4)

Frequency of risky electronic communication

The most frequently reported type of risky electronic communication in this sample was sharing images of themselves. Between 40 and 45% of young people acknowledged that at some point during the last year they had shared personal information with people they did not know or shared a password with a friend or partner. Over a fifth of the sample reported being in contact with someone they did not know offline on a weekly basis. 12.1% of the sample reported to have shared nude or nearly nude images of themselves in the last 12 months. In addition, 3.4% of those young people who had shared such images also acknowledged that they had sent naked or semi-naked videos of themselves. More detailed descriptive statistics are displayed in Appendix 11. A Kruskal-Wallis test indicated that there were not significant differences in scores for risky electronic communication between the three gender groups ($H(2) = 2.710, p = .258$).

Prevalence of online victimisation

94% of the respondents reported that they had experienced some form of online victimisation less than a few times a year or more. The most commonly reported behaviours were being sworn at (87.6%), someone being mean towards them (74.1%) and being made fun of (73.3%). 39.7% of respondents reported that they had received some unwanted contact of a sexual nature. Significant differences were found between gender groups and online victimisation ($H(2) = 7.115, p = .029$). Mean rank scores were lower for males in comparison to females and young people who did not identify as male or female, suggesting that males reported less online

victimisation. Age was not significantly correlated with frequency of online victimisation in this sample.

Covariates

Possible covariates were assessed in relation to the main study variables. Previous research suggests that specific characteristics of electronic media use are associated with online victimisation therefore these were also included in the analyses (Guo, 2016; Hong et al., 2016). As the following were continuous variables, Spearman's rank correlation coefficients were calculated for: age, the age they first used the internet, age they first owned a smart phone, frequency of internet use, frequency of text and picture messaging, frequency of social networking site (SNS) use and frequency of instant messaging (IM). Bias-corrected accelerated bootstrapping methods were employed as the sampling distribution of the data was significantly different from normality. Results were based on 5000 bootstrap samples. There were no significant associations found regarding the frequency of internet use, the age an individual first used the internet or owned a smart phone and the main variables of interest. However, frequency of text and picture messaging, frequency of IM and SNS were all significant correlated with online victimisation (see Table 3) therefore these variables were controlled for in all subsequent mediation analyses. A significant positive correlation was noted between age and risky electronic communication ($r_s = .202$ [.023, .379], $p = .029$) therefore age was controlled for in the mediation model involving risky electronic communication.

Kruskal-Wallis tests were conducted to analyse associations between categorical variables and the main variables of interest. No significant differences were found for ethnicity, additional support for learning status, or history of CAMHS attendance in relation to risky electronic communication, attachment anxiety, attachment avoidance, childhood maltreatment or online victimisation. Although, significant differences were found regarding gender and online victimisation ($H(2) = 7.115$, $p = .029$); young people who identified as male reported lower levels of online victimisation. Significant differences were also found between gender groups and attachment anxiety ($H(2) = 12.969$, $p = .002$). Median attachment anxiety scores were lower for females compared to males and those young people who did not

identify as male or female. As this variable was reverse scored, this indicates that females reported greater attachment anxiety. As gender was identified as a significant covariate, it was also controlled for in all mediation analyses.

Table 3. Correlation Coefficients between Study Variables

	REC	Att. anx.	Att. avoid.	OV	Age	Frequency of:		
						SNS use	IM	Text/ picture messaging
Childhood maltreatment	.018	-.184*	-.196*	.283**	.118	-.078	-.017	.009
Risky electronic comm. (REC)	1	-.214*	.049	.509**	.202*	.423**	.332**	.244**
Attachment anxiety		1	.170	-.443**	.025	-.234*	-.223*	-.265**
Attachment avoidance			1	-.068	-.156	.147	.136	.284**
Online victimisation				1	.014	.279**	.329**	.289**
Age					1	.191*	.062	.014
SNS use						1	.757**	.313**
IM							1	.429**

Notes: * $p \leq .05$ ** $p \leq .01$ (two-tailed). CM = Childhood maltreatment, REC = risky electronic communication, OV = online victimisation, SNS use = social networking site use, IM = instant messaging. Due to the scoring key for the attachment anxiety and attachment avoidance variables, lower scores indicate higher attachment anxiety & higher attachment avoidance.

Relationships between the main study variables

The correlations for the main study variables are presented in Table 3. Childhood maltreatment was significantly negatively correlated with both attachment anxiety and attachment avoidance, albeit with correlations of small effect size. Low scores on the attachment measure are representative of higher attachment insecurity, thus these correlations indicate that as young people reported higher levels of childhood maltreatment, they experience higher levels of attachment anxiety and attachment avoidance. Risky electronic communication showed a significant positive correlation

with online victimisation indicating that young people who engage in risky patterns of electronic communication are more likely to report higher levels of online victimisation ($r_s = .509$, 95% BCa CI [.344, .645], $p = .000$). This represented a large effect size. Attachment anxiety was significantly correlated with online victimisation, however, attachment avoidance was not. Attachment anxiety was also significantly correlated with risky electronic communication, suggesting that young people who report higher attachment anxiety tend to exhibit more risky electronic communication.

Hypothesis 1: Childhood maltreatment will be associated with online victimisation

Childhood maltreatment was positively correlated with online victimisation, indicating that young people who report higher levels of childhood maltreatment also report higher levels of online victimisation in adolescence ($r_s = .283$, 95% BCa CI [.110, .445], $p = .002$). This represented a medium effect size. Childhood maltreatment was also a significant predictor of online victimisation in this sample (total effect = .563, bias-corrected bootstrap confidence interval [.319, .8060], $p = .000$).

Hypothesis 2: Attachment insecurity (attachment anxiety and avoidance) will mediate the relationship between childhood maltreatment and online victimisation

Mediation analysis was conducted whilst controlling for gender, IM, SNS use and frequency of text and picture messaging. With regards to attachment anxiety, the a path (childhood maltreatment to attachment anxiety) was significant ($a = -.088$, $p = .002$), as was the b path (attachment anxiety to online victimisation; $b = -1.354$, $p = .002$). This showed that higher levels of self-reported childhood maltreatment were associated with greater attachment anxiety (as lower scores represent greater attachment insecurity), in turn, young people who reported greater attachment anxiety experienced higher levels of online victimisation.

The effect of childhood maltreatment on online victimisation, independent of attachment anxiety, was significant (total effect = .563, bias-corrected bootstrap

confidence interval [.319, .8060], $p = .000$). There was also a significant indirect effect of childhood maltreatment on online victimisation through attachment anxiety ($ab = .119$, bias-corrected bootstrap confidence interval [.048, .222]). However, when attachment anxiety was included in the model, childhood maltreatment continued to have a significant direct effect on online victimisation ($c' = .448$, $p = .001$) indicating that attachment anxiety acted as a partial mediator (see Figure 1).

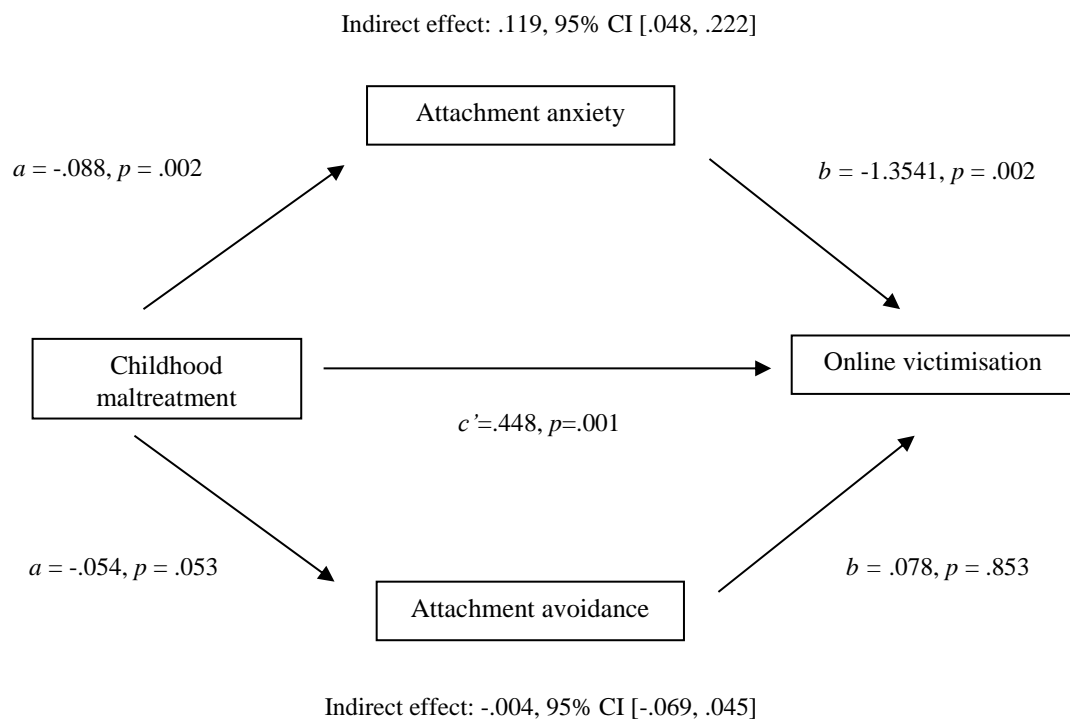


Figure 1. Multiple mediation model depicting the role of attachment anxiety and attachment avoidance in the relationship between childhood maltreatment and online victimisation

When attachment avoidance was entered as a potential mediator, neither the a path (childhood maltreatment to attachment avoidance) nor the b path (attachment avoidance to online victimisation) were significant ($a = -.054, p = .053, b = .078, p = .853$) indicating that attachment avoidance did not indirectly effect the relationship between maltreatment and online victimisation ($ab = -.004$, 95% BCa CI [-.069, .045]). This also revealed that attachment avoidance was not a significant predictor of online victimisation in this sample, contrary to expectation. This model, which included predictor variables and covariates, explained 33% of the variance in online victimisation scores ($R^2 = .3324$), although, attachment anxiety and childhood

maltreatment were the only significant predictors in this model. When attachment anxiety and attachment avoidance were removed from the model, childhood maltreatment was the only significant predictor, which explained 27% of the variance in online victimisation scores ($R^2 = .2655$). In terms of effect size, the standardised indirect effect for attachment anxiety was $b = .085$, 95% BCa CI [.037, .155] and for attachment avoidance $b = -.003$, [-.045, .033].

Hypothesis 3: Risky electronic communication will mediate the relationship between childhood maltreatment and online victimisation

Age, gender, IM use, SNS use and frequency of text and picture messaging were controlled for in this mediation model. The a path (childhood maltreatment to risky electronic communication) was not significant ($a = .025$, $p = .658$), however, the b path (risky electronic communication to online victimisation) was significant ($b = 1.084$, $p = .0000$). Although a partial effect of risky electronic communication on online victimisation was found, overall risky electronic communication did not show a mediator effect on the relationship between childhood maltreatment and online victimisation ($ab = .027$, 95% CI [-.107, .151]). Refer to Figure 2. Even though risky electronic communication did not indirectly effect the relationship, childhood maltreatment and risky electronic communication were significant predictors of online victimisation; together they explained 45% of the variance in online victimisation scores ($R^2 = .4467$). When risky electronic communication was removed from the model, childhood maltreatment was the only remaining significant predictor, which explained 27% of the variance in online victimisation scores ($R^2 = .2655$).

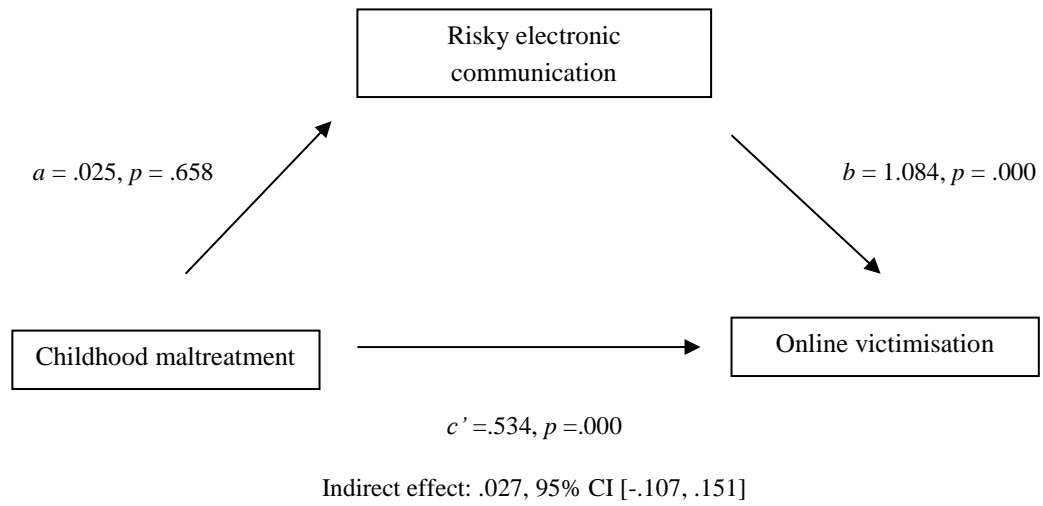


Figure 2. Mediation model with risky electronic communication entered as a mediator in the relationship between childhood maltreatment and online victimisation

2.6 Discussion

The aim of this study was to investigate the relationship between childhood maltreatment and online victimisation in a non-clinical adolescent sample. The prevalence of self-reported childhood maltreatment in this sample was very high; much higher than the rates reported in a UK-wide study which surveyed 11-17 year olds (Radford et al., 2011). Just under half of the adolescents in the current study reported some experiences of childhood maltreatment, with over a quarter indicating that their experiences fell within the moderate to severe range. This is particularly surprising given the normative sample used. Furthermore, these figures may be an underestimate, as the majority of adolescents endorsed items which suggest denial or minimisation of maltreatment. One possible explanation for the high rates of maltreatment reported in this study is the self-selected sample.

Emotional abuse and emotional neglect were the most commonly reported maltreatment subtypes in this study. This may be due to emotional maltreatment being a less tangible form of maltreatment, which is more difficult for professionals to evidence and so it is more likely to be under-recognised and under-reported (Glaser, 2002). Research has drawn links between levels of deprivation and childhood maltreatment (Sidebotham, Heron, Golding, & The ALSPAC Study Team, 2002). Although information regarding socio-economic indicators were not collected as part of this study, according to data from the SIMD 2016, the local authority in which the study was conducted is one of the least deprived areas in Scotland (Scottish Government, 2016). However, the SIMD has been criticised for not accurately capturing the level of deprivation in less densely populated areas, such as rural communities and so pockets of deprivation may have been overlooked.

It is possible that there are higher rates of emotional maltreatment in the geographical origin of the sample. However, few studies have considered the cross-cultural prevalence of maltreatment sub-types and so there is limited evidence to support this hypothesis. A similar study carried out by Smith (2014) also found emotional abuse and emotional neglect to be the most prevalent forms of maltreatment amongst adolescents in Tayside. However, this study utilised a small clinical sample. As there

is a paucity of research focusing solely on the rates of childhood maltreatment in Scotland it is difficult to interpret the findings of this study within a Scottish context.

Very few measures are validated for use with adolescents which encapsulate both online harassment and online victimisation of a sexual or offensive nature therefore the CES Victimisation scale was piloted with adolescents in this study for the first time. The reported prevalence of online victimisation was higher in this sample compared to the original study which involved college students, with the clear majority of young people acknowledging that they had experienced some form of online victimisation in the last 12 months. Almost 40% of respondents had experienced some form of unwanted contact of a sexual nature. This suggests a rise in the phenomenon compared to trends reported in the UK by Net Children Go Mobile (Livingstone, Haddon, Vincent, Mascheroni, & Ólafsson, 2014) and EU Kids Online (Livingstone, Haddon, Görzig, & Ólafsson, 2011).

The results supported the study's primary hypothesis; young people who have a history of childhood maltreatment experience higher levels of victimisation online. Even when accounting for covariates, childhood maltreatment was a significant predictor of online victimisation in adolescence. This extends the findings of previous research which has primarily focused on how physical or sexual abuse relate to sexual solicitation or online harassment (Helweg-Larsen et al., 2012; Noll et al., 2013; Noll, Shenk, Barnes, & Putnam, 2009; Mitchell et al., 2007).

Regarding the second hypothesis, attachment anxiety partially mediated the relationship between experiences of childhood maltreatment and online victimisation in adolescence, however, attachment avoidance did not. The results suggest that adolescents who have experienced interpersonal trauma are more likely to experience attachment insecurity, but those who report higher levels of attachment anxiety may be at greater risk of online victimisation. Adolescents who have experienced challenging parental relationships and high family conflict may use the internet to seek out supportive relationships. However, these young people report experiencing their caregivers as inconsistent and unpredictable, and in order to try to ensure a felt sense of security their behaviour becomes organised to elicit proximity to maximise the likelihood of gaining access to their caregiver. In the online environment, this

may translate to a person going to considerable lengths to gain the acceptance of others due to their strong desire for closeness and their low self-appraisal. These pre-existing vulnerabilities may therefore explain why some young people are at greater risk of victimisation within online interpersonal relationships than others. However, the partial mediating role of attachment anxiety suggests that there are other factors influencing this relationship.

As attachment avoidance is characterised by maintaining an emotional distance and devaluing close relationships, it was hypothesised that this negative evaluation of others may serve to protect young people from further victimisation online.

However, the results did not support this hypothesis: experiences of childhood maltreatment was not a significant predictor of attachment avoidance and attachment avoidance did not predict online victimisation. This contradicts previous research findings which revealed moderate correlations between childhood maltreatment and the attachment dimension in adolescents (Smith, 2014; Wekerle & Wolfe, 1998).

Although, self-report measures may be limited in their assessment of attachment avoidance as self-disclosure is likely to be lower for individuals who minimise the importance of personal relationships. It is possible that individuals who experience both high levels of attachment anxiety and attachment avoidance may be at greatest risk of online victimisation. Such individuals exhibit contradictory patterns of attachment behaviour due to a break down in the strategies they use to relate to others and elicit care (Solomon & George, 2011). However, the attachment measure used in this study does not jointly capture the two attachment dimensions which would represent a disorganised pattern of attachment (Main & Solomon, 1986).

Regarding the third hypothesis, risky electronic communication did not play a mediating role in the re-victimisation of adolescents. The internal consistency of the measure used to assess risky electronic communication was poor which may explain this non-significant finding. Nevertheless, both risky electronic communication and childhood maltreatment were significant predictors of online victimisation. Young people who engage in risky patterns of electronic communication are more vulnerable to victimisation online and through mobile communication. It is possible that risky electronic communication may have a moderating effect, thereby changing

the relationship between childhood maltreatment and online victimisation. This is an area for further exploration by researchers in future. In addition, it seems plausible that additional factors are likely to be influencing this relationship which were not measured in this study. For instance, parental monitoring of online activity may mediate the relationship between childhood maltreatment and risky electronic communication.

To the author's knowledge this is the first study to explore the relationship between childhood maltreatment, attachment insecurity, risky online communication and online victimisation in adolescence. This study replicates previous research which found childhood maltreatment to be a significant predictor of online victimisation. Although prior studies have tended to focus solely on physical abuse and sexual abuse, this study incorporated a range of maltreatment subtypes and the findings suggest that the relationship between emotional maltreatment and online victimisation may be worthy of further investigation. Additionally, this study provides preliminary evidence that attachment anxiety, in part, may be able explain the transmission of risk of experiencing maltreatment offline to an online environment. Relatively little research has been undertaken in the rural communities of northern Scotland, which makes this study unique.

Limitations

Some studies have shown adolescent populations may be more willing to answer sensitive questions about risky behaviour via a computer (Wang et al., 2005). Given the sensitivity of the topic under investigation, and the format of administration, it is possible that respondents did not feel able to answer the questionnaires truthfully despite anonymity and confidentiality being assured. On reflection, using a computer-assisted survey may have resulted in greater self-disclosure and reduced socially desirable responses.

A key limitation of this study is that the A-RSQ demonstrated poor internal consistency. This casts doubt upon whether the items within the subscales were all measuring the same construct and thereby reduces the reliability of the scale. This limitation has also been noted in the original version of the scale (Griffin & Bartholomew, 1994). The authors of the original scale expressed reservations about

whether adults can provide accurate self-report data regarding the four prototypes which may provide a plausible explanation for the scales low internal consistency. If an individual with high attachment avoidance does not endorse some items relating to avoidance which fall within the dismissing scale, this would reduce the internal consistency of that subscale. Another possible contributing factor may be the low number of items in each of the subscales.

It should be noted that the individual subscales relate to the four-prototypes in the Bartholomew and Horowitz (1991) model of attachment; although these are used to calculate the two underlying attachment dimensions, they are not representative of the constructs. As the two underlying dimensions were utilised in this study rather than the four attachment categories, relying upon the internal consistency of the four prototypes may not be appropriate. Nevertheless, the results of this study should be interpreted with caution in light of this limitation. Future studies are likely to benefit from using a measure of attachment with better psychometric properties.

Alternatively, administering an additional measure of attachment and incorporating multiple informants would improve the reliability of attachment ratings, although, this approach is resource intensive.

Participants were recruited from a remote and rural area in Scotland consequently the sample is unlikely to be representative of the wider adolescent population. Some studies have found differences in electronic media use between urban and rural communities (Chang et al., 2016; Lariscy, Reber, & Paek, 2010) and therefore the generalisability of these findings are somewhat limited.

Traditional bullying was not controlled for in this study but given that online victimisation and traditional bullying tend to be strongly correlated, this would be an important consideration for future research. Investigating the interaction between childhood maltreatment, traditional bullying and online victimisation may broaden our understanding of poly-victimisation.

Implications

This study highlights that experiences of childhood maltreatment, attachment anxiety and risky electronic communication are all risk factors for experiencing online

victimisation in adolescence. This suggests that some offline vulnerabilities translate to the online world, providing an additional environment in which some young people may be more likely to be victimised. The effects of experiencing different types of maltreatment are cumulative and highly predictive of future victimisation (Finkelhor et al., 2007); therefore prevention of online victimisation is important in reducing the risks of poly-victimisation. Future research should seek to increase our understanding of the transmission of risk from experiencing maltreatment offline to online environments.

The prevalence of emotional maltreatment in this sample is concerning. Studies have repeatedly shown that there is a significant association between emotional maltreatment in childhood and experiencing emotional and behavioural difficulties (Hunt, Slack, & Berger, 2017; Maguire et al., 2015; Miller et al., 2017). Moreover, studies have indicated that these difficulties may extend into adulthood (Carr, Martins, Stingel, Lemgruber, & Juruena, 2013; Cecil, Viding, Fearon, Glaser, & McCrory, 2017). These results have implications for universal professionals working with children and young people and may indicate a need for training to raise their awareness of emotional maltreatment as a common, yet under-reported form of abuse. Greater recognition of the symptoms of emotional maltreatment and onward referral to specialist services may aid early intervention and minimise its detrimental impact. Further research focusing specifically on childhood maltreatment in Scotland is required to verify these findings.

Intervention programmes which solely focus on risk factors at the individual level are unlikely to be effective. This study highlights that the family system and the parent-child relationship are key contextual factors which need to be considered when developing such programmes. Parenting programmes which promote attachment security in childhood may help to prevent online victimisation. Professionals in universal services should be aware of the risk factors of online victimisation and routinely enquire about adolescent experiences online. The PSE curriculum in schools should specifically highlight the implications of sharing personal information and explicit images, as well as recommend ways to manage risks encountered online. Much younger children are now frequent users of the

internet and mobile communication, therefore internet safety messages need to be targeting pre-adolescents. Although, this prevention work needs to be embedded within a culture in which confidence and respectful relationships are promoted through the family environment.

Conclusion

This study demonstrates the heightened vulnerability of adolescents with maltreatment histories to experiencing re-victimisation through online and mobile communication. Interventions which reduce attachment anxiety and increase young people's awareness of the risks surrounding electronic communication may reduce the incidence of online victimisation.

Future research should explore the pathways from childhood maltreatment to attachment insecurity and the potentially differentiating effect the two attachment dimensions may have, as well as the interaction with risky patterns of electronic communication, to further our understanding of the complex developmental processes associated with online victimisation.

2.7 References

- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four category model. *Journal of Personality and Social Psychology*, 61(2), 226–244. <http://doi.org/10.1037/0022-3514.61.2.226>
- Bernstein, D. P., Ahluvalia, T., Pogge, D., & Handelsman, L. (1997). Validity of the childhood trauma questionnaire in an adolescent psychiatric population. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(3), 340–348. <http://doi.org/10.1097/00004583-199703000-00012>
- Bernstein, D. P., & Fink, L. (1998). *The childhood trauma questionnaire: A retrospective self-report manual*. San Antonio: TX: The Psychological Corporation, Harcourt Brace & Company.
- Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., ... Zule, W. (2003). Development and validation of a brief screening version of the childhood trauma questionnaire. *Child Abuse and Neglect*, 27(2), 169–190. [http://doi.org/10.1016/S0145-2134\(02\)00541-0](http://doi.org/10.1016/S0145-2134(02)00541-0)
- Bowlby, J. (1969). *Attachment and loss: Volume I: Attachment* (Vol. 1). New York: Basic Books. <http://doi.org/10.2307/588279>
- Bowlby, J. (1973). *Attachment and loss: Volume 2. Separation* (Vol. II). London: Hogarth.
- Bowlby, J. (1977). The making and breaking of affectional bonds I. Aetiology and psychopathology in light of attachment theory. *British Journal of Psychiatry*, 130, 201–210. <http://doi.org/10.1192/bjp.130.5.421>
- Carr, A. (2015). *The handbook of child and adolescent clinical psychology: A contextual approach*. London: Routledge. <http://doi.org/doi:10.4324/9781315744230>
- Carr, C. P., Martins, C. M., Stingel, A. M., Lemgruber, V. B., & Juruena, M. F. (2013). The role of early life stress in adult psychiatric disorders: A systematic review according to childhood trauma subtypes. *The Journal of Nervous and Mental Disease*, 201(12), 1007–1020.

- Cecil, C. A. M., Viding, E., Fearon, P., Glaser, D., & McCrory, E. J. (2017). Disentangling the mental health impact of childhood abuse and neglect. *Child Abuse & Neglect*, 63, 106–119. <http://doi.org/10.1016/j.chiabu.2016.11.024>
- Chang, F.-C., Miao, N.-F., Chiu, C.-H., Chen, P.-H., Lee, C.-M., Chiang, J.-T., & Chuang, H.-Y. (2016). Urban-rural differences in parental Internet mediation and adolescents' Internet risks in Taiwan. *Health, Risk & Society*, 18(3–4), 188–204.
- Chen, L., Ho, S. S., & Lwin, M. O. (2016). A meta-analysis of factors predicting cyberbullying perpetration and victimization: From the social cognitive and media effects approach. *New Media & Society*, 19(8), 1194–1213. <http://doi.org/10.1177/1461444816634037>
- Davis, J. S., Fani, N., Ressler, K., Jovanovic, T., Tone, E. B., & Bradley, B. (2014). Attachment anxiety moderates the relationship between childhood maltreatment and attention bias for emotion in adults. *Psychiatry Research*, 217(1–2), 79–85. <http://doi.org/10.1016/j.psychres.2014.03.010>
- Desai, S., Arias, I., Thompson, M. P., & Basile, K. C. (2002). Childhood victimization and subsequent adult revictimization assessed in a nationally representative sample of women and men. *Violence and Victims*, 17(6), 639–653. <http://doi.org/10.1891/vivi.17.6.639.33725>
- Doane, A. N., Boothe, L. G., Pearson, M. R., & Kelley, M. L. (2016). Risky electronic communication behaviors and cyberbullying victimization: An application of protection motivation theory. *Computers in Human Behavior*, 60, 508–513. <http://doi.org/10.1016/j.chb.2016.02.010>
- Doane, A. N., Kelley, M. L., Chiang, E. S., & Padilla, M. A. (2013). Development of the cyberbullying experiences survey. *Emerging Adulthood*, 1(3), 207–218. <http://doi.org/10.1177/2167696813479584>
- Downey, R. G., & King, C. V. (1998). Missing data in Likert ratings: A comparison of replacement methods. *The Journal of General Psychology*, 125(2), 175–91. <http://doi.org/10.1080/00221309809595542>

- Drouin, M., & Tobin, E. (2014). Unwanted but consensual sexting among young adults: Relations with attachment and sexual motivations. *Computers in Human Behavior*, 31(1), 412–418. <http://doi.org/10.1016/j.chb.2013.11.001>
- Dykas, M. J., Ziv, Y., & Cassidy, J. (2008). Attachment and peer relations in adolescence. *Attachment & Human Development*, 10(2), 123–141. <http://doi.org/10.1080/14616730802113679>
- Earls, L. (2010). *The relationship between adult attachment and trauma* (Doctoral dissertation). Retrieved from <http://commons.emich.edu/theses/284/>
- Ellis, W. E., & Wolfe, D. A. (2009). Understanding the association between maltreatment history and adolescent risk behavior by examining popularity motivations and peer group control. *Journal of Youth and Adolescence*, 38(9), 1253–1263. <http://doi.org/10.1007/s10964-008-9318-3>
- Fahy, A. E., Stansfeld, S. A., Smuk, M., Smith, N. R., Cummins, S., & Clark, C. (2016). Longitudinal associations between cyberbullying involvement and adolescent mental health. *Journal of Adolescent Health*, 59(5), 502–509. <http://doi.org/10.1016/j.jadohealth.2016.06.006>
- Feldman, S., & Downey, G. (1994). Rejection sensitivity as a mediator of the impact of childhood exposure to family violence on adult attachment behavior. *Development and Psychopathology*, 6(1), 231–247. <http://doi.org/10.1017/S0954579400005976>
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. London: SAGE Publications Ltd. <http://doi.org/10.1016/B978-012691360-6/50012-4>
- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007). Re-victimization patterns in a national longitudinal sample of children and youth. *Child Abuse and Neglect*, 31(5), 479–502. <http://doi.org/10.1016/j.chiabu.2006.03.012>
- Fisher, B. W., Gardella, J. H., & Teurbe-Tolon, A. R. (2016). Peer cybervictimization among adolescents and the associated internalizing and externalizing problems: A meta-analysis. *Journal of Youth and Adolescence*, 45(9), 1727–1743. <http://doi.org/10.1007/s10964-016-0541-z>

- Fritz, M. S., & Mackinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18(3), 233–239.
- Glaser, D. (2002). Emotional abuse and neglect (psychological maltreatment): A conceptual framework. *Child Abuse & Neglect*, 26(6), 697–714.
- Griffin, D., & Bartholomew, K. (1994). The metaphysics of measurement: The case of adult attachment. In K. Bartholomew & D. Perlman (Eds.), *Attachment processes in adulthood: Advances in personal relationships* (Vol.5, pp. 14–52). London: Jessica Kingsley Publishers.
- Guo, S. (2016). A meta-analysis of the predictors of cyberbullying perpetration and victimization. *Psychology in the Schools*, 53(4), 432–453.
<http://doi.org/10.1002/pits.21914>
- Haddon, L., & Vincent, J. (2014). *European children and their carers' understanding of use, risks and safety issues relating to convergent mobile media. Report D4.1*. Milano: Unicatt.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York: The Guilford Press. <http://doi.org/978-1-60918-230-4>
- Helweg-Larsen, K., Schutt, N., & Larsen, H. B. (2012). Predictors and protective factors for adolescent Internet victimization: Results from a 2008 nationwide Danish youth survey. *Acta Paediatrica*, 101(5), 533–539.
- Hong, J. S., Lee, J., Espelage, D. L., Hunter, S. C., Patton, D. U., Rivers, T., ... Rivers, T. J. (2016). Understanding the correlates of face-to-face and cyberbullying victimization among U.S. adolescents: A social-ecological analysis. *Violence & Victims*, 31(4), 638–663. <http://doi.org/10.1891/0886-6708.VV-D-15-00014>
- Hunt, T. K. A., Slack, K. S., & Berger, L. M. (2017). Adverse childhood experiences and behavioral problems in middle childhood. *Child Abuse & Neglect*, 67, 391–402. <http://doi.org/10.1016/j.chiabu.2016.11.005>
- IBM Corp. (2013). IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.

- Jones, L. M., Mitchell, K. J., & Finkelhor, D. (2012). Trends in youth internet victimization: Findings from three youth internet safety surveys 2000–2010. *Journal of Adolescent Health, 50*(2), 179–186.
<http://doi.org/10.1016/j.jadohealth.2011.09.015>
- Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin, 140*(4), 1073–1137.
<http://doi.org/10.1037/a0035618>
- Lariscy, R. W., Reber, B. H., & Paek, H.J. (2010). Examination of media channels and types as health information sources for adolescents: Comparisons for black/white, male/female, urban/rural. *Journal of Broadcasting & Electronic Media, 54*(1), 102–120. <http://doi.org/10.1080/08838150903550444>
- Livingstone, S. (2013). Online risk, harm and vulnerability: Reflections on the evidence base for child Internet safety policy. *ZER: Journal of Communication Studies, 18*(35), 13–28.
- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011). *Risks and safety for children on the internet: The UK report*. LSE, London: EU Kids Online.
- Livingstone, S., Haddon, L., Vincent, J., Mascheroni, G., & Ólafsson, K. (2014). *Net children go mobile: The UK report*. London: London School of Economics and Political Science.
- Livingstone, S., & Helsper, E. J. (2010). Balancing opportunities and risks in teenagers' use of the internet: The role of online skills and internet self-efficacy. *New Media & Society, 12*(2), 309–329.
<http://doi.org/10.1177/1461444809342697>
- Livingstone, S., Mascheroni, G., Ólafsson, K., & Haddon, L. (2014). *Children's online risks and opportunities: Comparative findings from EU kids online and net children go mobile*. London: London School of Economics and Political Science.

- Livingstone, S., & Smith, P. K. (2014). Annual research review: Harms experienced by child users of online and mobile technologies: The nature, prevalence and management of sexual and aggressive risks in the digital age. *Journal of Child Psychology and Psychiatry*, 55(6), 635–654.
- MacDonald, K., Thomas, M. L., Sciolla, A. F., Schneider, B., Pappas, K., Bleijenberg, G., ... Finzi-Dottan, R. (2016). Minimization of childhood maltreatment is common and consequential: Results from a large, multinational sample using the Childhood Trauma Questionnaire. *PLoS ONE*, 11(1). <http://doi.org/10.1371/journal.pone.0146058>
- Maguire, S. A., Williams, B., Naughton, A. M., Cowley, L. E., Tempest, V., Mann, M. K., ... Kemp, A. M. (2015). A systematic review of the emotional, behavioural and cognitive features exhibited by school-aged children experiencing neglect or emotional abuse. *Child: Care, Health and Development*, 41(5), 641–653. <http://doi.org/10.1111/cch.12227>
- Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/disoriented attachment pattern. In T. B. B. M. W. Yogman (Ed.), *Affective development in infancy* (pp. 95–124). Westport, CT, US: Ablex Publishing.
- Miller, A. B., Jenness, J. L., Oppenheimer, C. W., Gottlieb, A. L. B., Young, J. F., & Hankin, B. L. (2017). Childhood emotional maltreatment as a robust predictor of suicidal ideation: A 3-year multi-wave, prospective investigation. *Journal of Abnormal Child Psychology*, 45, 105–116. <http://doi.org/10.1007/s10802-016-0150-z>
- Mitchell, K. J., Finkelhor, D., & Wolak, J. (2007). Youth internet users at risk for the most serious online sexual solicitations. *American Journal of Preventive Medicine*, 32(6), 532–537. <http://doi.org/10.1016/j.amepre.2007.02.001>
- Noll, J. G., & Grych, J. H. (2011). Read-react-respond: An integrative model for understanding sexual revictimization. *Psychology of Violence*, 1(3), 202–215. <http://doi.org/10.1037/a0023962>

- Noll, J. G., Shenk, C. E., Barnes, J. E., & Haralson, K. J. (2013). Association of maltreatment with high-risk internet behaviors and offline encounters. *Pediatrics*, 131(2), e510-7. <http://doi.org/10.1542/peds.2012-1281>
- Noll, J. G., Shenk, C. E., Barnes, J. E., & Putnam, F. W. (2009). Childhood abuse, avatar choices, and other risk factors associated with Internet-initiated victimization of adolescent girls. *Pediatrics*, 123(6), e1078–e1083.
- Ofcom. (2016). *Children and parents: Media use and attitudes report*. Retrieved from https://www.ofcom.org.uk/__data/assets/pdf_file/0034/93976/Children-Parents-Media-Use-Attitudes-Report-2016.pdf
- Oshri, A., Sutton, T. E., Clay-Warner, J., & Miller, J. D. (2015). Child maltreatment types and risk behaviors: Associations with attachment style and emotion regulation dimensions. *Personality and Individual Differences*, 73, 127–133. <http://doi.org/10.1016/j.paid.2014.09.015>
- Pallini, S., Baiocco, R., Schneider, B. H., Madigan, S., & Atkinson, L. (2014). Early child-parent attachment and peer relations: A meta-analysis of recent research. *Journal of Family Psychology*, 28(1), 118–23. <http://doi.org/10.1037/a0035736>
- Radford, L., Corral, S., Bradley, C., Fisher, H., Bassett, C., Howat, N., & Collishaw, S. (2011). *Child abuse and neglect in the UK today*. Retrieved from NSPCC website, <https://www.nspcc.org.uk/services-and-resources/research-and-resources/pre-2013/child-abuse-and-neglect-in-the-uk-today/>.
- Roodman, A. A., & Clum, G. A. (2001). Revictimization rates and method variance: A meta-analysis. *Clinical Psychology Review*, 21(2), 183–204. [http://doi.org/10.1016/S0272-7358\(99\)00045-8](http://doi.org/10.1016/S0272-7358(99)00045-8)
- Scharfe, E. (2002). Reliability and validity of an interview assessment of attachment representations in a clinical sample of adolescents. *Journal of Adolescent Research*, 17(5), 532–551. <http://doi.org/10.1177/0743558402175006>
- Scottish Government. (2016). *SIMD16 analysis: Moray*. Retrieved from <http://www.gov.scot/Resource/0051/00510727.pdf>

- Sidebotham, P., Heron, J., Golding, J., & The ALSPAC Study Team. (2002). Child maltreatment in the “Children of the Nineties”: Deprivation, class, and social networks in a UK sample. *Child Abuse & Neglect*, 26, 1243–1259.
- Smith, C. (2014). *Adolescent resilience following childhood maltreatment* (Doctoral thesis). Retrieved from <https://www.era.lib.ed.ac.uk/handle/1842/16217>
- Smith, P., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology & Psychiatry*, 49(4), 376–385.
- Solomon, J., & George, C. (2011). The disorganized attachment-caregiving system: Dysregulation of adaptive processes at multiple levels. In J. Solomon & C. George (Eds.), *Disorganization of attachment and caregiving: Research and clinical advances* (pp. 3–24). New York: Guilford Press.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using Multivariate Statistics (4th edition)*. Boston: Allyn & Bacon.
- Thompson, R. A., & Raikes, H. A. (2003). Toward the next quarter-century: Conceptual and methodological challenges for attachment theory. *Development and Psychopathology*, 15, 691–718. <http://doi.org/10.1017/S0954579403000348>
- Tynes, B. M., Rose, C. A., & Williams, D. R. (2010). The development and validation of the online victimization scale for adolescents. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 4(2), 1–15.
- van Dijck, J. (2009). Users like you? Theorizing agency in user-generated content. *Media, Culture & Society*, 31(1), 41–58. <http://doi.org/10.1177/0163443708098245>
- Walden, L. M., & Beran, T. N. (2010). Attachment quality and bullying behavior in school-aged youth. *Canadian Journal of School Psychology*, 25(5), 5–18. <http://doi.org/10.1177/0829573509357046>
- Walrave, M., & Heirman, W. (2011). Cyberbullying: Predicting victimisation and perpetration. *Children and Society*, 25(1), 59–72. <http://doi.org/10.1111/j.1099-0860.2009.00260.x>

- Wang, Y. C., Lee, C. M., Lew-Ting, C. Y., Chuhsing, K. H., Chen, D. R., & Chen, W. J. (2005). Survey of substance use among high school students in Taipei: Web-based questionnaire versus paper-and-pencil questionnaire. *Journal of Adolescent Health, 37*(4), 289–295.
<http://doi.org/10.1016/j.jadohealth.2005.03.017>
- Wekerle, C., & Wolfe, D. A. (1998). The role of child maltreatment and attachment style in adolescent relationship violence. *Development and Psychopathology, 10*, 571–586. <http://doi.org/10.1017/S0954579498001758>
- Wells, M., & Mitchell, K. J. (2008). How do high-risk youth use the internet? Characteristics and implications for prevention. *Child Maltreatment, 13*(3), 227–234. <http://doi.org/10.1177/1077559507312962>
- Whittle, H., Hamilton-Giachritsis, C., Beech, A., & Collings, G. (2013). A review of young people's vulnerabilities to online grooming. *Aggression and Violent Behavior, 18*(1), 135–146. <http://doi.org/10.1016/j.avb.2012.11.008>
- Williams, K., & Kennedy, J. H. (2012). Bullying behaviors and attachment styles. *North American Journal of Psychology, 14*(2), 321–338.
<http://doi.org/10.1037/a0027720>
- Ybarra, M.L., Espelage, D., & Mitchell, K. (2007). The co-occurrence of Internet harassment and unwanted sexual solicitation victimization and perpetration: Associations with psychosocial indicators. *Journal of Adolescent Health, 41*(6), S31-41.
- Ybarra, M. L., & Mitchell, K. J. (2004). Online aggressor/targets, aggressors, and targets: A comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 45*(7), 1308–1316.
<http://doi.org/10.1111/j.1469-7610.2004.00328.x>
- Ybarra, M. L., Mitchell, K. J., Finkelhor, D., & Wolak, J. (2007). Internet prevention messages: Targeting the right online behaviors. *Archives of Pediatrics & Adolescent Medicine, 161*(2), 138–145.

Appendices

Appendix 1. Submission Guidelines

CHILD ABUSE & NEGLECT

The International Journal

GUIDE FOR AUTHORS

Types of contributions

1. **Research Article:** Child Abuse and Neglect publishes quantitative, qualitative, and mixed-method research. Particular focus will be placed on thorough and appropriate methods, strong data analysis and discussion of implications for the field.

2. **Reviews:** Authors with plans for proposed review articles (systematic, meta-analytic, scoping) are invited to first submit a draft outline to the Editor-in-Chief. Please send proposals to chiabu@elsevier.com. The editors will commission reviews on specific topics. Reviews submitted without invitation or prior approval may be returned.

3. **Discussion Article:** Plans for proposed critical review discussion articles are invited to first submit a draft outline to the Editor-in-Chief. Please send proposals to chiabu@elsevier.com. These articles may discuss a policy or legal / philosophical framework or a brief data report. The article must present a critical analysis of areas of gap in practice or research, current critical or emergent issues, with an expectation of utilizing an integration and discussion of empirical research.

Please note we do not publish case reports or clinical case studies.

Contact details for submission

All correspondence, including notification of the Editor-in-Chief's decision and requests for revision, takes place by e-mail and via the Author's homepage, removing the need for a hard-copy paper trail.

For those authors unable to utilize the EES system, or with questions about submissions, please contact the Editorial Office (chiabu@elsevier.com) for assistance.

BEFORE YOU BEGIN

Ethics in publishing

Please see our information pages on [Ethics in publishing](#) and [Ethical guidelines for journal publication](#).

Human and animal rights

If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with [The Code of Ethics of the World Medical Association](#) (Declaration of Helsinki) for experiments involving humans; [Uniform Requirements for manuscripts submitted to Biomedical journals](#). Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

All animal experiments should comply with the [ARRIVE guidelines](#) and should be carried out in accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, [EU Directive 2010/63/EU for animal experiments](#), or the National Institutes of Health guide for the care and use of Laboratory animals (NIH Publications No. 8023, revised 1978) and the authors should clearly indicate in the manuscript that such guidelines have been followed.

Declaration of interest

All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations within three years of beginning the submitted work that could inappropriately influence, or be perceived to influence, their work. [More information.](#)

Submission declaration and verification

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis or as an electronic preprint, see '[Multiple, redundant or concurrent publication](#)' section of our ethics policy for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service [CrossCheck](#).

Changes to authorship

Authors are expected to consider carefully the list and order of authors **before** submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only **before** the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the **corresponding author**: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed. Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors **after** the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

Article transfer service

This journal is part of our Article Transfer Service. This means that if the Editor feels your article is more suitable in one of our other participating journals, then you may be asked to consider transferring the article to one of those. If you agree, your article will be transferred automatically on your behalf with no need to reformat. Please note that your article will be reviewed again by the new journal.

[More information.](#)

Copyright

Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see [more information](#) on this). An e-mail will be sent to

the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. [Permission](#) of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has [preprinted forms](#) for use by authors in these cases.

For open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' ([more information](#)). Permitted third party reuse of open access articles is determined by the author's choice of [user license](#).

Author rights

As an author you (or your employer or institution) have certain rights to reuse your work. [More information](#).

Elsevier supports responsible sharing

Find out how you can [share your research](#) published in Elsevier journals.

Role of the funding source

You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

Funding body agreements and policies

Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the Open Access Publication Fee. Details of [existing agreements](#) are available online.

Open access

This journal offers authors a choice in publishing their research:

Open access

- Articles are freely available to both subscribers and the wider public with permitted reuse.
- An open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Subscription

- Articles are made available to subscribers as well as developing countries and patient groups through our [universal access programs](#).
- No open access publication fee payable by authors.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For open access articles, permitted third party (re)use is defined by the following [Creative Commons user licenses](#):

Creative Commons Attribution (CC BY)

Let others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author's honor or reputation.

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)

For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The open access publication fee for this journal is **USD 1800**, excluding taxes.

Learn more about Elsevier's pricing policy:

<http://www.elsevier.com/openaccesspricing>.

Green open access

Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our [green open access page](#) for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution's repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. [Find out more](#).

This journal has an embargo period of 36 months.

Language (usage and editing services)

Please write your text in good English (only American usage is accepted, as dictated by APA style). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's WebShop (<http://webshop.elsevier.com/languageediting/>) or visit our customer support site (<http://support.elsevier.com>) for more information.

Submission

Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

Submit your article

Please submit your article via <http://ees.elsevier.com/chiabuneg/>

PREPARATION

Double-blind review

This journal uses double-blind review, which means the identities of the authors are concealed from the reviewers, and vice versa. [More information](#) is available on our website. To facilitate this, please include the following separately:

Title page (with author details): This should include the title, authors' names and affiliations, and a complete address for the corresponding author including an e-mail address.

Blinded manuscript (no author details): The main body of the paper (including the references, figures, tables and any acknowledgements) should not include any identifying information, such as the authors' names or affiliations.

Use of word processing software

It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns.

The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the [Guide to Publishing with Elsevier](#)). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Length and Style of Manuscripts

Full-length manuscripts should not exceed 35 pages total (including abstract, text, references, tables, and figures), with margins of at least 1 inch on all sides and a standard font (e.g., Times New Roman) of 12 points (no smaller).

Instructions on preparing tables, figures, references, metrics, and abstracts appear in the [Publication Manual of the American Psychological Association](#) (6th edition).

For helpful tips on APA style, [click here](#).

Article structure

Subdivision

Divide your article into clearly defined sections. Three levels of headings are permitted. Level one and level two headings should appear on its own separate line; level three headings should include punctuation and run in with the first line of the paragraph.

Introduction

State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Essential title page information

- **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.
- **Author names and affiliations.** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. Present the authors' affiliation addresses (where the actual work was done)

below the names. Indicate all affiliations with a lowercase superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

- **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**

- **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract

Abstracts should follow APA style (see 6th ed., pages 25-27 for detailed instructions and page 41 for an example). Abstracts should be 150-250 words.

Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Formatting of funding sources

List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa]. It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Footnotes

The use of footnotes in the text is not permitted. Footnoted material must be incorporated into the text.

Table footnotes Indicate each footnote in a table with a superscript lowercase letter.

Artwork

Electronic artwork

General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the used fonts if the application provides that option.

- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the published version.
- Submit each illustration as a separate file.

A detailed [guide on electronic artwork](#) is available.

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats

If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format. Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

EPS (or PDF): Vector drawings, embed all used fonts.

TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi. TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.

TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

Please do not:

- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

Color artwork

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. **For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article.** Please indicate your preference for color: in print or online only. [Further information on the preparation of electronic artwork.](#)

Figure captions

Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (**not** on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

Text graphics

Text graphics may be embedded in the text at the appropriate position. If you are working with LaTeX and have such features embedded in the text, these can be left. See further under Electronic artwork.

Tables

Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

References

Citation in text

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Web references

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

Data references

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

References in a special issue

Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Reference management software

Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support [Citation Style Language styles](#), such as [Mendeley](#) and [Zotero](#), as well as [EndNote](#). Using the word processor plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style.

If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link: <http://open.mendeley.com/use-citation-style/child-abuse-and-neglect>

When preparing your manuscript, you will then be able to select this style using the Mendeley plugins for Microsoft Word or LibreOffice.

Reference style

Text: Citations in the text should follow the referencing style used by the American Psychological Association (view the [APA Style Guide](#)). You are referred to the Publication Manual of the American Psychological Association, Sixth Edition, ISBN 978-1-4338-0561-5.

List: references should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T. (2015). Mortality data for Japanese oak wilt disease and surrounding forest compositions. *Mendeley Data*, v1. <http://dx.doi.org/10.17632/xwj98nb39r.1>.

Examples:

Reference to a journal publication:

Van der Geer, J., Hanraads, J. A. J., & Lupton, R. A. (2010). The art of writing a scientific article. *Journal of Scientific Communications*, 163, 51–59.

Reference to a book:

Strunk, W., Jr., & White, E. B. (2000). *The elements of style*. (4th ed.). New York, NY: Longman.

Reference to a chapter in an edited book:

Mettam, G. R., & Adams, L. B. (2009). How to prepare an electronic version of your article. In B.S. Jones, & R. Z. Smith (Eds.), *Introduction to the electronic age* (pp. 281–304). New York, NY: EPublishing.

Video

Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the files in one of our recommended file formats with a preferred maximum size of 150 MB. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including [ScienceDirect](#). Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our [video instruction pages](#). Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Supplementary material

Supplementary material such as applications, images and sound clips, can be published with your article to enhance it. Submitted supplementary items are

published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file.

Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

RESEARCH DATA

This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the [research data](#) page.

Data linking

If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that give them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the [database linking page](#).

For [supported data repositories](#) a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

Data in Brief

You have the option of converting any or all parts of your supplementary or additional raw data into one or multiple data articles, a new kind of article that houses and describes your data. Data articles ensure that your data is actively reviewed, curated, formatted, indexed, given a DOI and publicly available to all upon publication. You are encouraged to submit your article for *Data in Brief* as an additional item directly alongside the revised version of your manuscript. If your research article is accepted, your data article will automatically be transferred over to *Data in Brief* where it will be editorially reviewed and published in the open access data journal, *Data in Brief*. Please note an open access fee is payable for

publication in *Data in Brief*. Full details can be found on the [Data in Brief website](#). Please use [this template](#) to write your Data in Brief.

AudioSlides

The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. [More information and examples are available](#). Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

Interactive plots

This journal enables you to show an Interactive Plot with your article by simply submitting a data file. [Full instructions](#).

Submission checklist

The following list will be useful during the final checking of an article prior to sending it to the journal for review. Please consult this Guide for Authors for further details of any item.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:

- E-mail address
- Full postal address
- Phone numbers

All necessary files have been uploaded, and contain:

- Keywords
- All figure captions
- All tables (including title, description, footnotes)

Further considerations

- Manuscript has been 'spell-checked' and 'grammar-checked'
- References are in the correct format for this journal
- All references mentioned in the Reference list are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Web)
- Color figures are clearly marked as being intended for color reproduction on the Web (free of charge) and in print, or to be reproduced in color on the Web (free of charge) and in black-and-white in print
- If only color on the Web is required, black-and-white versions of the figures are also supplied for printing purposes

For any further information please visit our customer support site at

<http://support.elsevier.com>.

Appendix 2. Operationalisation of Quality Criteria

1) The study has a clear rationale and a focused research question	
Well covered	The rationale for the study is clearly outlined and is based upon empirical evidence. The research question is clear and well-focused.
Adequately addressed	The rationale for the study is based on empirical evidence but is less clearly outlined. The research question is less well-defined.
Poorly addressed	The rationale for the study is unclear or is based on limited empirical evidence. The research question is difficult to determine.
Not addressed/ reported	The rationale for the study is not reported.

2) The aims/objectives and hypotheses of the study regarding CV and the relevant parenting variable(s) are clearly stated	
Well covered	The aims/objectives of the study are clearly addressed and well described. The hypotheses are explicitly stated.
Adequately addressed	The aims/objectives of the study are stated but are less clear. The hypotheses are less well-defined.
Poorly addressed	The aims/objectives of the study are difficult to establish. The hypotheses are not clear. If hypotheses are not specified in relation to the parenting variable but aims/objectives are provided, categorise as poorly addressed.
Not addressed/ reported	The aims/objectives and hypotheses are not reported.

3) The study uses an appropriate design to answer the research question	
Well covered	The study employs a longitudinal design.
Adequately addressed	The study uses a cross-sectional design.
Poorly addressed	The design of the study is not appropriate for empirically addressing the research question.
Not addressed/ reported	The design of the study is not reported or not addressed.

4) A power calculation was conducted and an adequate sample size was achieved based on this calculation	
Well covered	A priori power calculation was conducted, using a fair and justified estimated effect size, to determine the required sample size. Power of 0.8 is achieved.
Adequately addressed	A priori power calculation is not reported but the sample size is sufficient for 0.8 power to be achieved.
Poorly addressed	Power calculation is reported but the study is underpowered due to inadequate sample size. Alternatively, estimated effect size is not reported as part of calculation or post-hoc power analysis indicates power is less than 0.8.
Not addressed/ reported	Power calculation cannot be determined through the information provided in the article.

5) The population being studied is clearly specified	
Well covered	The population being studied is well-described including socio-demographic characteristics, setting, location and period of recruitment.
Adequately addressed	The research population is less clearly described; basic demographic information is reported but the description may not include location or period of recruitment.
Poorly addressed	A limited description is provided regarding the population being studied.
Not addressed/ reported	Details of the research population are not reported.

6) The recruitment strategy is appropriate and clearly outlined	
Well covered	The recruitment method is clear and well-designed. Inclusion and exclusion criteria are explicitly stated and are appropriate to the aim of the research. Attrition rates for longitudinal studies are reported.
Adequately addressed	Method of recruitment and inclusion/exclusion criteria are less clearly described but are appropriate and relevant to the research aims. (However, the number of participants included in the study is reported and attrition rates are provided for longitudinal studies).
Poorly addressed	Limited information provided regarding method of recruitment and recruitment strategy not clearly documented (e.g. no. of participants included in the study is unclear). Inclusion/exclusion criteria are either not appropriate to the aim of the study or are not clearly described.
Not addressed/ reported	Recruitment method not outlined or inclusion and exclusion criteria not reported.

7) There was a sufficient response rate to participation	
Well covered	The response rate is reported to be over 70%.
Adequately addressed	The response rate is reported to be over 50%.
Poorly addressed	The response rate is not clearly specified or is reported to be below 50%.
Not addressed/ reported	The response rate is not reported.

8) Cyber-victimisation (CV) is clearly defined. The measurement of CV is consistent with the definition provided in the study.	
Well covered	A clear definition of CV is given and the measure used to assess CV is consistent with the definition provided in the article.
Adequately addressed	A definition of CV is provided but it may be less clear and/or not all the elements of the definition are captured by the measurement of CV.
Poorly addressed	It is difficult to determine how the study defined CV and/or the measure of CV is inconsistent with how the study defines the phenomenon. The study may not clearly define how CV was coded making it difficult to determine whether the measurement of CV is consistent with the definition.
Not addressed/ reported	A definition of CV is not reported or the information regarding the measure of CV is limited so it is impossible to determine the consistency between the definition and measurement of CV.

9) The measure(s) used to assess CV are valid and reliable	
Well covered	The measure demonstrates high reliability and validity. The measures subscales have been verified by exploratory or confirmatory factor analysis. The measure is valid for use with the target population.
Adequately addressed	The measure demonstrates reasonable reliability and validity. The measure may not be standardised. The validity of the measure in relation to its use with the sample population has been considered (e.g. adapted for target population).
Poorly addressed	The reliability and validity of the measure is questionable or limited. The measure may not have been adapted for an adolescent sample.
Not addressed/ reported	No valid or reliable measure of CV is used in the study, alternatively psychometric properties of the measure have not been reported or addressed.
Notes:	Note whether the measure assesses intent, repetition and/or imbalance in power between victim and perpetrator.

10) The measure(s) used to assess parenting behaviour are valid and reliable	
Well covered	The measure is standardised and demonstrates high reliability and validity. The measure has robust psychometric properties. The measure is valid for use with the target population.
Adequately addressed	The measure demonstrates reasonable reliability and validity. The measure may not be standardised. The validity of the measure in relation to its use with the sample population has been considered (e.g. adapted for target population).
Poorly addressed	The reliability and validity of the measure is questionable or limited.
Not addressed/ reported	No valid or reliable measure of parenting behaviour is used, alternatively psychometric properties of the measure have not been reported or addressed.

11) Covariates are identified and controlled for in statistical analysis	
Well covered	Covariates are clearly identified (e.g. sex, age) either through the literature or the use of inferential statistics; all the covariates evident in the study were controlled or accounted for within the statistical analyses.
Adequately addressed	Most confounding variables were accounted for or controlled for within the statistical analysis.
Poorly addressed	Covariates were considered but were not well-controlled or accounted for.
Not addressed/ reported	Covariates were not controlled for or were not reported.

12) The statistical analysis is appropriate for the study design	
Well covered	The statistical analysis used is appropriate for the design of the study. Where appropriate, probability values, confidence intervals and effect sizes are reported for all the variables of interest.
Adequately addressed	The statistical analysis used is appropriate but the information reported is less detailed. Effect sizes may not be reported.
Poorly addressed	The statistical analysis is not appropriate for the study design. Categorise as “poorly addressed” even if p-values, confidence intervals and effect sizes are reported.
Not addressed/ reported	Quantitative analysis was not conducted or is not reported.

13) The results of the study are clearly outlined with reference made to the original research question	
Well covered	Clear links are made between the results of the study and the original hypotheses and research question. The results are considered and discussed in the context of previous research.
Adequately addressed	The results are outlined but the link back to the original hypotheses/research question and evidence base is less explicit.
Poorly addressed	The results of the study are poorly described and there is no reference made to the original hypotheses and research question.
Not addressed/ reported	Results are not reported.

14) The generalisability of the study findings is discussed	
Well covered	The generalisability of the findings is well considered. This may include whether the sample was representative of the population being studied, whether the definition and measure of CV is comparable to other studies or how relevant the findings are, given digital advances since the data was collected.
Adequately addressed	The generalisability of the findings is partially outlined.
Poorly addressed	Reference is made to the generalisability of the findings but is not expanded upon.
Not addressed/ reported	Generalisability is not considered.

15) The limitations of the study are outlined	
Well covered	All significant limitations are summarised and their potential impact is well-considered.
Adequately addressed	Not all limitations are reported and/or little reference is made regarding their potential impact.
Poorly addressed	Little consideration is given to the limitations of the study or their impact.
Not addressed/ reported	Limitations are not reported.

Appendix 3. Operationalisation of Overall Quality Ratings (Morris, 2015)

Excellent	All or the clear majority of the quality criteria have been well covered. In addition, it is considered <i>very unlikely</i> that the limitations of the study have affected the findings or conclusions drawn.
Very good	The considerable majority of the quality criteria have been well covered or adequately addressed. It is considered <i>unlikely</i> that the limitations of the study have affected the findings or conclusions
Reasonable	Most of the quality criteria have been well covered or adequately addressed, however, the limitations of the study are thought to have modestly affected the study's findings or conclusions.
Limited	Most of the quality criteria have not been well covered or adequately addressed and/or it is considered <i>likely</i> or <i>very likely</i> that the study's limitations have affected the findings or conclusions.

Appendix 4. Summary of Measures used to Assess CV and Parenting Behaviour

	Measure used to assess CV	Measure used to assess parenting behaviour
Bossler et al. (2012)	4 item measure used previously by (Wolak, Mitchell & Finkelhor, 2006)	1 self-report item
Chang et al. (2015)	4 self-report items	<i>Parental attachment</i> : 2 items (Chang et al., 2015 only)
Chang et al. (2016)		Both studies used items adapted from the EU Kids Online (Livingstone, Haddon, Görzig, & Ólafsson, 2011b) parental mediation scale: <i>active use mediation</i> (4 items); <i>active safety mediation</i> (4 items); <i>monitoring mediation</i> (4 items); <i>technical mediation</i> (4 items); <i>restrictive mediation</i> (5 items)
		Chang et al. (2016) included parental report of the above mediation items
Hébert et al. (2016)	1 self-report item	<i>Maternal support</i> : 3 items used from The Inventory of Parent & Peer Attachment (IPPA) questionnaire (Armsden & Greenberg, 1987)
Hong et al. (2016)	2 items were added to the revised Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003)	<i>Parental monitoring (general)</i> : 8 self-report items; four focused on maternal behaviour and four focused on paternal behaviour <i>Parent/guardian support</i> : 3 self-report items <i>Peer group accepted by parents</i> : 1 self-report item
Katzer et al. (2009)	The Olweus Bully/Victim Questionnaire (1989) was adapted (9 items)	<i>Emotional parent-child relationship</i> : Combined and adapted 2 scales about general monitoring and emotional closeness from the Youth Internet Safety Survey (YISS; Ybarra & Mitchell, 2004) <i>Belief of parents in child's ability to act</i> : used a scale about the parental belief in the child from the 13 th Shell study (Fischer, Fritzsche, Fuchs-Heinritz, & Münchmeier, 2000)
Khurana et al. (2015)	2 self-report items	<i>Parental monitoring</i> : 8 items used from the Parental Monitoring Scale (Kerr, Stattin & Burk, 2010) <i>Parental internet restriction</i> : 3 items <i>Parents co-use of the internet</i> : 1 item
Martins et al. (2016)	1 item from the Diagnostic Questionnaire of Cyberbullying, which was developed for the study	<i>Family rules</i> : 3 items developed specifically for this study
Mesch (2009)	4 self-report items	1 item used to assess each of the following; rules on website; rules on information sharing; rules on time online; parent monitors sites, parent checks website, installed filter software

Navarro & Jasinski (2012)		Number of items not specified but assessed the following parenting behaviours: parent checks browser; parent uses website filter; parent uses software which records internet activity
Park et al. (2014)	No. of items not specified; enquired about cyberbullying via voice calls, texting, IM and SNS individually	<i>Communication time with parents</i> : 1 self-report item
Sanzone-Goodrich (2013)	22 item victimisation scale from the revised version of The Cyberbullying and Online Aggression Survey Instrument (COASI; Hinduja & Patchin, 2009)	<i>Perceived parental emotional availability</i> : used the Lum Emotional Availability of Parents (LEAP; Lum & Phares, 2005). 15 item scales which assesses maternal and paternal behaviour
Sasson & Mesch (2016)	Two step question initially asking about traditional bullying, then cyber-victimisation	Adapted 3 scales from EU Kids Online (O'Neill & McLaughlin, 2010) <i>Parental mediation through guidance</i> (6 items), <i>parental mediation through supervision</i> (6 items) & <i>non-intervention</i> (number of items not reported)
Taiariol (2010)	10 item cyber-victimisation survey developed for this study	<i>Parental responsiveness</i> : used 5 items from the Parenting Behaviour Questionnaire (original author not specified) <i>Parental monitoring</i> : 6 item Parental Monitoring Scale (Small & Kerns, 1993)
Wang et al. (2009)	2 items were added to the revised Olweus Bully/Victim Questionnaire (Solberg & Olweus, 2003)	<i>Parental support</i> : used 4 items from the parental support subscale of the Parental Bonding Instrument (Parker, Tupling & Brown, 1979)
Yale (2013)	Adapted the Internet Experiences Questionnaire (Schenk & Fremouw, 2012); 7 item self-report victimisation subscale	Parenting behaviour was assessed via parent report: <i>Solicitation about internet/phone use</i> : (7 items); <i>Family rules about internet/phone use</i> (4 items); <i>Covert monitoring of teen's internet/phone use</i> (4 items)
Ybarra et al. (2007)	3 items; 1 item from the YISS-2 (Ybarra & Mitchell, 2004), 1 item was adapted from the Youth Risk Behaviour Surveillance survey (Centers for Disease Control & Prevention, 2006) and the third item was created for the study	<i>Emotional connectedness with caregiver</i> : 3 items <i>Monitoring</i> : 2 items

Appendix 5. Thesis Research Proposal



Doctorate in Clinical Psychology

Thesis Research Proposal (for Research 1 assessment).

This form should be completed and submitted as the assessment for Research 1. It will then be reviewed by a member of the academic team and will receive a grade and detailed feedback. The feedback will include an evaluation of the viability of the project and any recommendations. If there are significant concerns about viability, the project will be flagged to the research director and the research committee will decide whether the project can proceed in its current form.

Provisional Thesis Title: Childhood Trauma and Online Risky Behaviour in an Adolescent Sample: The Mediating Role of Attachment and Emotion Regulation

Exam number: B027556

Word count: 5917

Allocated Thesis Project Supervisors

Clinical: Dr Caroline Smith, Clinical Psychologist

Academic 1: Dr Ethel Quayle

Academic 2: N/a

Others involved as part of project team (if applicable): N/a

Proposed setting: Secondary schools in Moray

Anticipated Month & Year of Submission of Thesis: 1st March 2017

Version: Version 1 (16th July 2015)

Introduction

1) Please provide a brief critical review of relevant literature, which should clearly demonstrate the rationale and scientific justification for the research.

The internet has become an integral part of many teenagers' lives with young people aged 12-15 spending over 17 hours per week online in the UK (Ofcom, 2014a). The internet and digital technologies can offer young people opportunities and positive experiences but can also lead to problematic and potentially risky situations arising online. The potential risks that young people may encounter online are wide-ranging: viewing aggressive or pornographic content, being subject to online harassment or online grooming, disclosure of personal information or self-produced sexual images, making friends online and arranging to meet them offline, are just some of the risks which have caused public concern (Carr, 2004; Liau *et al.*, 2005; Livingstone *et al.*, 2011).

A significant developmental task of adolescence is to individuate from the family system and develop one's identity (Tarrant *et al.*, 2006), therefore peer relationships become particularly pertinent during adolescence and this extends to peer relationships online (Davis, 2013). In the last few years research has begun to investigate the specific risks that young people are exposed to whilst communicating online and through developing online relationships (Ofcom, 2014b; Smahel & Wright, 2014). In a large scale study involving over 4500 young people, Mitchell *et al.* (2014) reported that 1 in 11 young people had been asked for sexual information or asked to engage in some form of sexual activity online in the past year. However, their results suggested that over the last decade, unwanted sexual requests experienced online had declined by half. In contrast, online harassment (otherwise known as 'cyberbullying') had increased by 83% in the last 10 years with 1 in 9 young people reporting to have been subjected to this. Moreover, half of these incidents were deemed to be distressing by young people.

However, studies have suggested that the way in which young people interact online can make them more vulnerable to experiencing problematic situations. Ybarra *et al.* (2007) highlighted that young people who engage in risky behaviour online, such as communicating with strangers and making hurtful comments towards others, were more likely to experience online victimisation in the form of sexual solicitation or harassment. The vast majority of young people communicate online in order to maintain relationships with people that they already know offline (Peter *et al.*, 2006). However, a small but significant minority (5%) have been found to communicate exclusively with strangers. Interestingly, other risky online behaviours such as the disclosure of personal information was not associated with increased risk of victimisation online and so Ybarra *et al.* (2007) concluded that adolescents who show a pattern of online risky behaviour are more vulnerable to interpersonal victimisation.

However, not all risky behaviour leads to harmful experiences. Data collected from over 3000 Dutch adolescents suggested that approximately half of the young people interviewed had met an internet acquaintance offline and very few adolescents reported experiencing offline victimisation as a result (Helweg-Larson *et al.*, 2012). Nevertheless, there is a growing body of research which implies that some young people are more vulnerable online (Livingstone & Smith, 2014; Wells & Mitchell, 2008; Whittle *et al.*, 2013). Offline psycho-social vulnerabilities influence the way in which young people communicate online and their engagement in risk taking behaviour (Livingstone & Helsper, 2007); having low self-esteem, mental health difficulties and individuals who are sensation seekers are all influential factors.

In the last decade, researchers have also started to investigate whether abusive experiences offline predict online risky behaviour. Mitchell *et al.* (2007a) identified that experiencing physical or sexual abuse was a risk factor for sexual solicitation which involved attempts to contact young people offline. Similarly, Noll *et al.* (2013) found that adolescents who experienced maltreatment during childhood were much more likely to have provocative social media profiles and to have experienced sexual advances online. In turn, these factors predicted young people's propensity to meet strangers' offline. In summary, there is strong evidence that there is a direct relationship between maltreatment and risk taking behaviour offline but to date there has been limited research regarding maltreatment and online risk taking behaviour. Research undertaken in this area has mainly focused on sexual solicitation and has ignored a number of other potentially problematic situations that young people encounter online.

Attachment

Bowlby first conceptualised attachment theory as "the propensity of human beings to make strong affectional bonds to particular others" (Bowlby, 1977, p. 201). The primary focus of research in this area has been on the early childhood years. Although more recently there has been increased interest in the role that adult attachment plays on social functioning and mental well-being (Ditzen *et al.*, 2008; Marganska *et al.*, 2013).

Research has described and categorised patterns of adult attachment in different ways; the model of adult attachment can be defined in terms of the model of the self and others which represent an individual's expectations of how worthy they are of receiving love and the availability of others (Bowlby, 1973). Using the model of the self and others as a framework, patterns of adult attachment can be categorised as secure, preoccupied, dismissing or fearful (Bartholomew, 1990; Bartholomew & Horowitz, 1991). In addition, two underlying dimensions, attachment anxiety and attachment avoidance, are thought to explain individual differences in adult attachment (Brennan *et al.*, 1998). Having low attachment anxiety and attachment avoidance would equate to a secure attachment style.

Mickelson *et al.* (1997) investigated the prevalence of adult attachment styles in a nationwide survey across America and the effect of childhood adversity; 59% of respondents were categorised as having a secure attachment. The authors concluded that not all adversity during childhood was related to attachment ratings, instead the results suggested that interpersonal trauma such as neglect and physical abuse were most consistently associated with the different types of insecure attachment in adulthood. Similarly, Earls (2010) found that trauma experienced during childhood places individuals at greater risk of attachment insecurity during adulthood. In addition, the study reported that increased severity of neglect and trauma was associated with higher levels of attachment anxiety and attachment avoidance.

Attachment has also been cited as an influential factor with regards to risk taking behaviour. Traditionally, studies have tended to focus on risky behaviour offline such as Regan (2010) who noted that insecure attachment style in adolescence was correlated with more risky sexual behaviour in adulthood. However, attachment may also play a significant role in online risky behaviour, particularly in the context of social relationships and online communication: A longitudinal study involving 600 adolescents indicated that insecure attachment to one's partner was significantly related to partner-directed aggression online and this relationship remained significant at 12 month follow up (Wright, 2015). Furthermore, there is some evidence to suggest that attachment acts as a mediator in the relationship between childhood trauma and risk taking behaviour. Oshri *et al.* (2015) found that attachment avoidance and attachment anxiety mediated the relationship between childhood abuse and substance misuse and antisocial behaviour in adolescents. To date, research has not considered whether these findings would be replicated for online risky behaviour; thus greater consideration needs to be given to the role of attachment as a mediator between childhood trauma and online risky behaviour. Another factor which is closely related to attachment and also develops through early child-parent interaction is emotion regulation. As this is known to be adversely affected by child maltreatment and is thought to influence participation in risky behaviour, it may be an additional factor worthy of consideration.

The role of emotion regulation

Emotion regulation refers to attempts to achieve control over one's emotions and the way in which these emotions are expressed. It involves a process of modulating emotional responses which are triggered by environmental demands (Gross & Munoz, 2006). Emotion regulation begins to develop in the context of the infant-caregiver relationship. Children's early experiences involving emotion and the extent to which their level of arousal is regulated depends upon the responsiveness and availability of their caregivers (Cicchetti & Valentine, 2006). Therefore it is unsurprising that children who experience childhood maltreatment show deficits in processes integral to emotion regulation such as recognizing, understanding and expressing emotion (Pears & Fisher, 2005; Kim-Spoon *et al.*, 2013). The detrimental impact of childhood maltreatment and trauma extends beyond emotion regulation: Alink *et al.* (2009) found that maltreated children were more likely to experience difficulties with emotion regulation compared to non-maltreated children and in turn, emotion dysregulation

was associated with higher psychopathology. Those children who scored highly for emotional dysregulation displayed more internalising and externalising behaviours such as aggression, withdrawal, somatic symptoms and anxiety.

Competence in emotional regulation develops throughout adolescence alongside significant changes in brain development associated with the regulation of behaviour and emotion (Steinberg, 2005). Emotion regulation has been found to play a role in the propensity for individuals to participate in risky behaviour and in part, this may explain the pattern of high risk behaviour commonly observed in adolescents (Beauchaine, 2015; Raffaelli & Crockett, 2003). Shorey *et al.* (2011) demonstrated that difficulties with emotion regulation were associated with physical and psychological aggression in romantic relationships among college students, although notable gender differences were found. Less effective emotion regulation strategies have also been found to predict engagement in risky behaviour such as fighting and arguing following excessive alcohol consumption (Magar *et al.*, 2008).

There is some evidence to suggest that emotion regulation may mediate the relationship between childhood trauma and participation in risk taking behaviour. Noll *et al.* (2011) demonstrated that psychological dysregulation partially mediated the relationship between childhood trauma and risky sexual behaviour in adolescent females. However, this study did not focus purely on the role of emotion regulation as psychological dysregulation was defined as struggling to modulate cognition, affect and behaviour. Oshri *et al.* (2015) offer further support as they concluded that emotion dysregulation mediated the relationship between childhood trauma and substance misuse and antisocial behaviour; more specifically, having difficulties with impulse control when experiencing negative emotions was strongly associated with risky behaviour amongst adolescents.

Rationale for the proposed research study

As previously noted there is some preliminary evidence to suggest that both attachment and emotion regulation play a crucial part in the relationship between childhood trauma and risky behaviour in adolescence and adulthood. To date the majority of research focusing on adolescent risk taking behaviour has excluded risky behaviour online, making this a worthy area of research. In addition, a significant proportion of research in this field has been undertaken in the United States therefore it is important to consider how young people's participation in risky behaviour online may vary from country to country. Consequences for adolescents engaging in risky behaviour online may be detrimental, resulting in harm and setting them on a "maladaptive trajectory". It is essential that professionals working with young people are aware of the risk factors which make some individuals more vulnerable to online risky behaviour. Raising awareness of these issues will help to ensure that preventative measures and effective interventions can be implemented to improve the safety of youth online.

The proposed study aims to replicate previous findings which suggest that childhood trauma is associated with online risky behaviour in adolescents. In this study, risky behaviour online will be defined as risks arising from patterns of online communication and the development of relationships online which may result in harm. In addition, the study aims to determine whether attachment and emotion regulation mediate the relationship between childhood trauma and risky behaviour online in adolescents.

Research Questions / Objectives:

2) What is the principal research question / objective?

Is childhood trauma directly associated with online risky behaviour in adolescents?

3) What are the secondary research questions / objectives if applicable?

Does attachment indirectly mediate the relationship between childhood trauma and online risky behaviour?

Does emotion regulation indirectly mediate the relationship between childhood trauma and online risky behaviour?

Methodology

4) Please give a full summary of your design and methodology. It should be clear exactly what will happen at each stage of the project.

Design

This will be a cross-sectional, questionnaire-based study. Pupils in secondary schools will be surveyed using four self-report measures. The resulting data will be quantitative in nature.

Recruitment

In the first instance ethical approval will be sought from the University of Edinburgh, School of Health in Social Science. Upon receipt of a favourable ethical opinion, the local authority education and social care department will be contacted to request permission to recruit secondary schools in the area. There are eight state secondary schools in the county. A letter will be sent to the head teacher of each of the schools inviting them to take part in the study. Follow up phone calls will then be made to ascertain which schools express an interest in the research. A meeting will be arranged at each school to provide staff with an overview of the research, to discuss the logistics of collecting data within the school and to address any questions or concerns which school professionals may raise.

Participants

A non-clinical sample will be drawn from secondary schools in a rural area of northern Scotland. Pupils in S2 to S4 will be invited to participate in this study as this will ensure that all students fall within the target age range of 12-16 years regardless of the time of year that data is collected. This age range was selected as research undertaken in the UK indicates that a higher percentage of young people in this age bracket have access to the internet (Synovate, 2009) and spend more time online (Ofcom, 2014) in comparison to their younger peers. A non-clinical sample was chosen as this study aims to gain a greater understanding of the behaviour amongst the general population, particularly given the limited amount of research carried out regarding online behaviour of adolescents in the UK.

Procedure

Participants will either be briefed about the study during assembly or Personal and Social Education lessons by the researcher depending upon the school's preference. Both verbal and written information about the study will be provided to pupils at this time and any initial questions will be answered. Pupils will be asked to read through an information sheet inviting them to participate in the study: This will outline the aim of the study and the procedure involved. It will highlight that their participation is voluntary and that they may withdraw from the study at any time without needing to provide a reason.

In accordance with the Age of Legal Capacity (Scotland) Act 1991, children under the age of 16 are considered to have the capacity to consent to participation in research as long as this does not entail entering a 'transaction' as defined by the Act. Applying this principle to the current study would mean that parental consent is not required. However, in addition to seeking written consent from the participant, information packs will be provided for parents. Pupils will be encouraged to discuss the study with their parents or carers and asked to pass on the information pack provided. This will include a parent information sheet, an opt-out form and the researchers contact details. Parents and carers will be given a two week time frame to indicate that they do not wish for their child to participate in the study. Consent to participation will be assumed if parents and carers do not return the opt-out form within the allocated time frame.

The researcher will return to the school after the two week opt out deadline to administer the battery of questionnaires during a Personal and Social Education lesson. Pupils will be asked to review the information sheet; for those who wish to partake, a consent form will be provided for them to sign and then the questionnaires will be administered. Pupils will be advised not to provide their names on the questionnaires, instead participant ID numbers will be used to link individuals responses back to their written consent forms. For those pupils who do not wish to take part, an optional task will be set by the teacher. Pupils will be given information about accessible support services and they will be encouraged to speak to a named teacher if they feel distressed in any way as a result of participating in the study.

5) Please list the principal inclusion and exclusion criteria

Inclusion criteria

- Young people aged 12-16 attending mainstream secondary school in the local area.
- Pupils who have used the internet at least once a week over the last three months.

Exclusion criteria

- Young people who attend independently funded schools or those who are home-schooled.
- Pupils who are unable to understand English or who cannot read.
- Teachers will be asked to identify young people who have special educational needs. These individuals will be excluded on the basis that they may be unable to provide fully informed consent. In addition, they are likely to require assistance in completing the questionnaires which would breach confidentiality.

6) How will data be collected?

Data will be collected through the four self-report questionnaires outlined below. These will be administered by the researcher to pupils in secondary schools during PSE lessons.

Childhood Trauma Questionnaire (CTQ-SF; Bernstein *et al.*, 2003)

This questionnaire was developed to gather retrospective information about traumatic experiences during childhood for both clinical and non-clinical populations. The CTQ-SF is a 28 item self-report measure which takes approximately 5 minutes to administer. It measures the occurrence of five types of maltreatment in childhood; physical, sexual, emotional abuse, physical neglect and emotional neglect. Respondent are asked to rate their experiences during childhood using a 5 point Likert scale ranging from “1= never true” to “5= very often true”. Five items are dedicated to each of the maltreatment subtypes and a further three items detect minimisation or denial of maltreatment. A total trauma score, which will incorporate all of the maltreatment subscales, will be calculated to create a single variable.

The measure has been validated for use with adolescents aged 12 and over (Bernstein *et al.*, 1997) and in community samples (Bernstein *et al.*, 2003). It has good internal consistency and therapist’s independent ratings of abuse and neglect were strongly correlated to the individual subtypes of maltreatment of the CTQ-SF, demonstrating that the measure has criterion-related validity (Bernstein *et al.*, 2003).

The Adolescent Relationship Scales Questionnaire (A-RSQ; Scharfe, 2009)

The A-RSQ is an adapted version of the Relationship Scales Questionnaire (Griffin & Bartholomew, 1994) for use with adolescents: the main difference being the slight modification of wording of those items selected for inclusion in the A-RSQ. The self-report questionnaire contains 17 items which can be used to measure the four attachment patterns and two attachment dimensions which underlie significant relationships. The time taken to complete this questionnaire is approximately 5 minutes. Respondent are asked to rate statements using a 5 point Likert scale ranging from “not all like me” to “very much like me”. In this study, scores will be used to generate a continuous measure of attachment using Bartholomew’s (1990) two-dimensional model; the two independent dimensions are attachment anxiety and attachment avoidance. Attachment anxiety

relates to an individual's model of the self in terms of the extent to which they believe they are worthy of receiving love and support. Attachment avoidance relates to the individual's model of others regarding their availability and trustworthiness.

The RSQ has demonstrated reasonable convergent validity when compared to coded interviews but the internal consistency of the questionnaire is quite variable (Griffin & Bartholomew, 1994). Scharfe and Bartholomew (1994) reported the test-retest reliability of the questionnaire to be 0.63 after eight months. This questionnaire was selected as it is brief, easy to administer and it has been specifically adapted for the target population of this study. The A-RSQ has been utilised in a number of recent studies involving adolescents (Erkan *et al.*, 2015; Rabley, 2011; Keskin & Cam, 2010).

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004)

The DERS is a self-report measure of difficulties with emotion regulation. It contains 36 items and comprises of six subscales: "(1) Non-acceptance of emotional responses, (2) difficulties engaging in goal-directed behavior, (3) impulse control difficulties, (4) lack of emotional awareness, (5) limited access to emotional regulation strategies and (6) lack of emotional clarity" (Gratz & Roemer, 2004). Respondents are asked to rate 36 statements on a 5 point Likert scale to indicate how applicable each statement is to them ("1= almost never" to "5= almost always"). The average time taken to complete the questionnaire is 8 minutes and the survey is freely available online. The authors reported high internal consistency, good test-retest reliability over 4-8 weeks and modest predictive and construct validity during their initial validation of the scale. Studies have demonstrated that the DERS is a valid measure, and has utility in both clinical and community samples of adolescents (Perez *et al.*, 2012; Neumann *et al.*, 2010).

Online risky behaviour

Unfortunately a standardized, validated questionnaire assessing risky behavior online has yet to be published. In order to measure risky online behavior, this study proposes to compile a questionnaire using items from The Second Youth Internet Safety Survey (YISS-2; Finkelhor *et al.*, 2011). This survey was developed by the Crimes against Children Research Centre which specializes in research on child victimization, child maltreatment and family violence. The survey was conducted with a sample of 1500 young people aged 10-17 through telephone interviews. The transcript of questions is freely available online and the author has granted permission for the materials to be used in future research. Research studies which incorporated the survey have been widely published in academic literature (Ybarra & Mitchell, 2007; Mitchell *et al.*, 2007b, 2007c, Wells & Mitchell, 2008; Wolak *et al.*, 2007, 2008; Ybarra *et al.*, 2007, 2008).

The compilation of the questionnaire will take a similar approach to Mitchell *et al.* (2009) who created the Index of Problematic Online Experiences (I-POE). The questionnaire will be devised to provide a cumulative score of several online risky behaviours. This will provide an index score which indicates the severity of risky behaviour online therefore the instrument will not be classed as a scale, which measures specific constructs. This methodology was used and tested by Mitchell *et al.* (2013) who reported that the I-POE had significant utility in identifying adolescents who exhibit problematic behaviours online.

Sections 4 and 5 of the survey will be used to compile the questionnaire. Section 4 of the survey poses questions about online relationships. E.g. "In the past year, have you met anyone on the internet who wanted to meet you in person?" "Did you actually meet this person face-to-face?" Section 5 focuses on online risky behavior such as the disclosure of personal information, distribution of self-produced sexual images, online harassment etc. E.g. "In the past year, how many times have you made rude or nasty comments to someone on the internet?" "In the past year,

how many times have you talked about sex online with someone you had never met in person?” On average, it took 30 minutes for the YISS-2 to be conducted with adolescents via telephone interview (Wells & Mitchell, 2008). Less than a third of the questions from the YISS-2 will be used to develop a questionnaire to measure online risky behavior for this study, therefore it is estimated that this questionnaire will take approximately 10 minutes to complete.

Demographic information

Information will be gathered from participants regarding their age, sex, ethnicity, whether they have a diagnosed mental health problem or have received input from mental health professionals. Young people will also be asked about characteristics of their internet use such as frequency, type, location and medium of internet access, as well as the age at which they began using the internet.

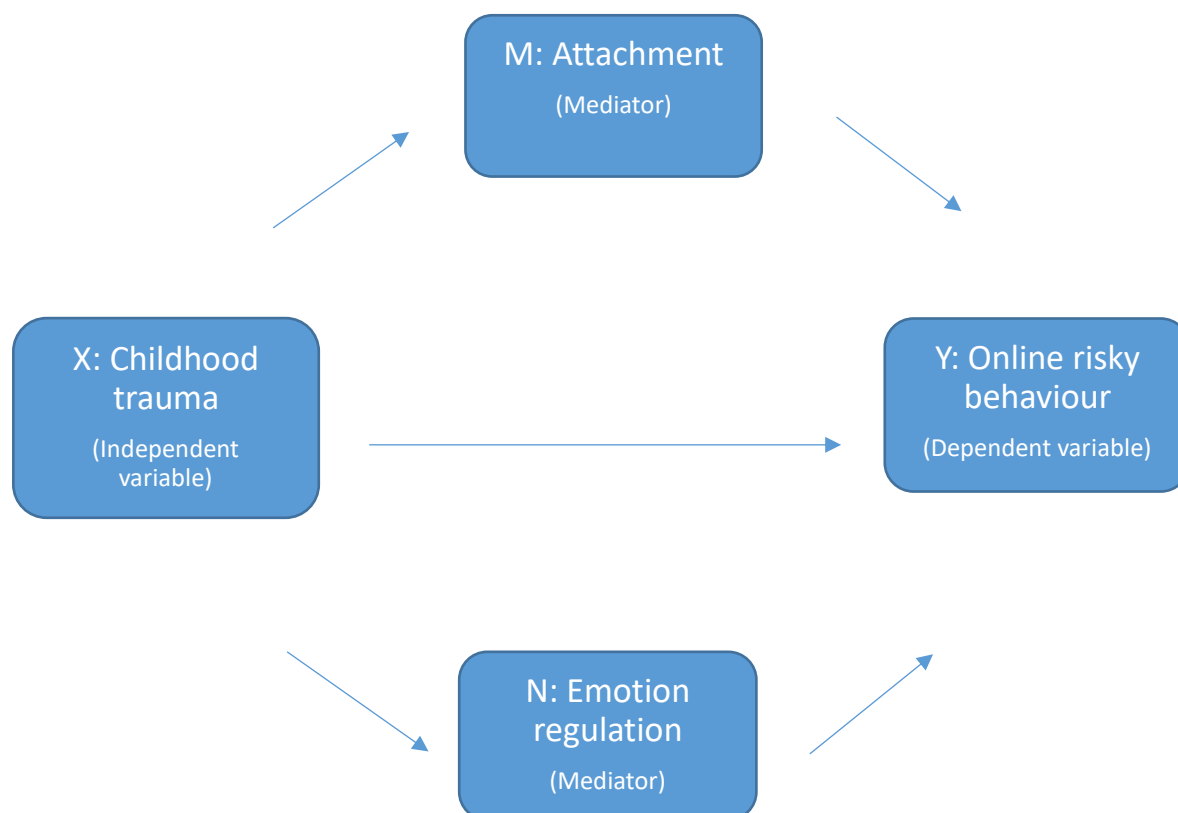
Sample size

7) What sample size is needed for the research and how did you determine this?

There is a paucity of research analysing the relationship between childhood trauma and online risky behaviour in adolescents; therefore in order to determine a realistic effect size for this study, the majority of studies reviewed focused on the relationship between trauma and offline risk taking behaviour (this information is summarised in the tables below).

The bias-corrected bootstrap test of mediation will be used to analyse the relationship between childhood trauma, online risky behaviour and the two proposed mediators (see question 9 for further information regarding the rationale for choosing this statistical test).

Figure 1. Hypothesised mediation model



Adapted from Fritz & Hayes 2007

Previous research suggests a medium effect size for the effect of X on M and a halfway effect size for the effect of M on Y (see Figure 1). Incorporating a medium to halfway effect size, Fritz & MacKinnon (2007) estimates that a minimum sample size of 116 participants is needed to achieve 0.8 power when using bias-corrected bootstrapping. It should be noted that the majority of the research reviewed is specific to risk taking behaviour off line and therefore the effect sizes may not be generalizable to the current study. However, as this study proposes to focus on risky behaviour online in the context of social relationships, it is possible that a halfway effect size may be a conservative estimate for the relationship between attachment and online risky behaviour.

Studies investigating the indirect relationship between maltreatment and risk taking via attachment	Effect size
Regan (2010) Association between child maltreatment & adolescent attachment Correlation between adolescent attachment & adult sexual risk behaviour	$r = 0.20$ (small to medium) $r = -0.32$ (medium)
Earls (2010) Association between childhood maltreatment and attachment in adulthood: Maltreatment & attachment anxiety Maltreatment & attachment avoidance	$r = 0.44$ (medium to large) $r = 0.39$ (medium to large)
Selwood (2013) Association between Child Abuse & Trauma (CAT) score & attachment in homeless adults CAT score & anxious attachment CAT score & avoidant attachment	$r = 0.536$ (large) $r = 0.572$ (large)
Oshri et al. (2015) Relationship between attachment & risky behaviour in adolescence: Attachment anxiety & alcohol use Attachment avoidance & alcohol use Attachment anxiety & anti-social behaviour Attachment avoidance & anti-social behaviour	$r = 0.12$ (small) $r = 0.12$ (small) $r = 0.12$ (small) $r = 0.16$ (small)
Wright (2015) Longitudinal study analysing the relationship between partner attachment & partner-directed cyber aggression (PDCA) in adolescents Anxious partner attachment & PDCA (time 1 & time 2) Avoidant partner attachment & PDCA (time 1 & time 2)	$r = 0.33$ (medium), $r = 0.25$ (small to medium) $r = 0.19$ (small to medium) $r = 0.14$ (small)

Previous research analysing the relationship between childhood trauma, emotion regulation and offline risky behaviour found varying effect sizes (see table below), however, a medium effect size was considered to be a reasonable estimate for the effect of X on N. Based on the findings of prior research, a halfway effect size for the effect of N and Y was decided upon. In line with the first mediational analysis, at least 116 participants will be required for this study.

Studies investigating the indirect relationship between maltreatment and risk taking via emotion regulation (ED)	Effect size
Arttime & Peterson (2012) Studied whether emotion regulation mediated the relationship between childhood maltreatment and sexual risk taking in men: Child maltreatment & ED ED & diagnosis of STI's ED & no. of sexual partners	$r = 0.51$ (large) $r = 0.05$ (small) $r = 0.11$ (small)
Oshri <i>et al.</i> (2015) Studied whether emotion regulation mediated the relationship between childhood maltreatment and risky behaviour in adolescence: Physical abuse & DERS subscales Verbal abuse & DERS subscales Sexual abuse & DERS subscales Emotional abuse & DERS subscales DERS subscales & alcohol use DERS subscales & drug use DERS subscales & anti-social behaviour	Effect sizes ranged from: $r = 0.13$ to 0.27 (small to medium) $r = 0.23$ to 0.34 (small to medium) $r = 0.15$ to 0.28 (small to medium) $r = 0.28$ to 0.51 (medium to large) $r = 0.11$ to 0.17 (small) $r = 0.11$ to 0.23 (small to medium) $r = 0.11$ to 0.26 (small to medium)
Vilhena (2011) analysed the relationship between child maltreatment and emotion regulation: Emotional abuse & ED Emotional neglect & ED Physical abuse & ED Physical neglect & ED Sexual abuse & ED	$r = 0.46$ (medium to large) r $= 0.44$ (medium to large) $r = 0.32$ (medium) r $= 0.37$ (medium) $r = 0.21$ (small to medium)
Shorey <i>et al.</i> (2011) Analysed the relationship between emotion regulation & dating violence in college students. ED & psychological aggression in men ED & psychological aggression in women ED & physical aggression perpetration in women	$r = 0.19$ (small to medium) $r = 0.23$ (small to medium) $r = 0.23$ (small to medium)

8) Outline reasons for your confidence in being able to achieve a sample of at least this size.

As the surveys will be administered to students whilst they are in school and this process will be overseen by the researcher, the response rate is expected to be much higher than those in studies which rely upon postal questionnaires. The local council's school roll forecasts suggest that there will be 2837 pupils in S2 to S4 (i.e. all students will be aged 12-16) in 2015, and 2745 pupils in 2016. This provides a large number of participants who are potentially eligible to take part in this study across the eight secondary schools in the area. Another Trainee Clinical Psychologist is

currently undertaking research in the local area utilising a school-based population. To date, she has recruited two secondary schools and 162 pupils have participated in her study. Data collection and recruitment is still ongoing so this figure is likely to rise. Based on these figures, it seems plausible that over 116 participants will be recruited for this proposed research study. Secondary schools across Grampian could also be approached and recruited if required.

Analysis

9) Please describe the methods of analysis by which the data will be evaluated to meet the study objectives.

In the first instance, descriptive statistics will be used to describe the demographics of the sample in relation to the main variables. The data will then be analysed to determine whether it is normally distributed. If it is found to be significantly different from the normal distribution then the data will be transformed. Pearson's correlation coefficient will be used to assess the relationships between variables; the relationship between childhood trauma and online risky behaviour will be of particular interest. In addition, this will determine whether there are any covariates or confounding variable which need to be controlled for.

In order to address the main research question, simple regression will be used to determine whether childhood trauma directly predicts online risky behaviour. Bootstrapping methods, as developed by Preacher & Hayes (2004) will then be used to conduct mediational analysis. This technique was selected as, unlike the Sobel test (Sobel, 1982), it does not assume that the indirect effect is normally distributed. In addition, this method tends to be high in power and it controls well for Type I error (Hayes, 2009). More specifically, the bias-corrected bootstrap test of mediation will be selected as it corrects for skew in the data. In the absence of a significant total effect of X on Y, further analysis of an indirect effect will be undertaken as recommended by Preacher & Hayes (2004). Specific indirect effects of X on Y through M and X on Y through N will be analysed separately. Post-hoc analysis may be carried out depending upon the results of the data analysis detailed above.

Project Management: Timetable

10) Outline a timetable for completion of key stages of the project.

July 2015	Thesis proposal submission deadline.
August/September 2015	Await feedback from academic team on thesis proposal. Arrange a telephone consultation with academic and clinical supervisor to review the viability of the project going ahead in its current form. Make any necessary alterations to the research methodology.
September 2015	Develop participant/parent information sheets and obtain copies of the 3 standardised measures. Compile online risky behaviour questionnaire and ensure this is reviewed by both supervisors.
October 2015	Submit Research Ethics Application (REA) to University of Edinburgh, School of Health in Social Science.
November 2015	Upon receipt of a favourable ethical opinion, contact the local authority education & social care department to request permission to recruit secondary schools.
November/December 2015	Contact local schools to invite them to participate in the study
December 2015 – June 2016*	Carry out data collection. Write introduction and methodology section. Begin literature search and complete first draft of systematic review.
July – August 2016	Data analysis.
September – November 2016	Write results and discussion section.
November – December 2016	Complete final draft of systematic review.
January 2017	Complete initial draft of thesis by mid-January and submit for review by supervisors.
March 2017	Thesis submission deadline for RPL trainees: 1 st March 2017.

*Schools will close on 30th June 2016 for the summer holiday period.

Management of Risks to Project

11) Please summarise the main potential risks to your study, the perceived likelihood of occurrence of these risks and any steps you will or have taken to reduce these risks. Outline how you will respond to identified risks if they should occur.

Distress caused by participation

It is possible that young people who take part in the study may experience some level of distress due to the sensitive nature of the topic under investigation. In order to reduce the likelihood of this occurring, young people will be provided with a participant information sheet that clearly explains the rationale for the study, emphasises that their participation is voluntary and that they may withdraw from the study without having to provide a reason. Information and contact details about local support services and online resources will be provided to all participants. Pupils will be encouraged to access these or to speak to their guidance teacher if they experience any distress as a result of participating in this study.

Answering sensitive questions

Participants may have concerns about how their information will be used and the consequences of disclosing abusive experiences or engaging in risky behaviour online. The participant information sheet will emphasise that their responses are anonymous and the signed consent form and completed questionnaires will be stored separately. This will result in the researcher being unable to respond to the disclosure of sensitive information which flags up issues of risk. Participants will be encouraged to speak to a professional such as a teacher or to contact the police if they are currently at risk of abuse. Information about support available online (e.g. Childline website) and how to keep safe both on and offline will be provided.

Recruitment

Schools may refuse to take part in the research due to the sensitivity of the questions posed and the potential implications that the results of the study may have. In the first instance these concerns would be explored and assurances provided around the procedures in place should any pupils experience distress. Education professional may express concern that the results of the study may indicate that their pupils have experienced childhood trauma or are engaging in risk taking behaviour online. However, this information could be utilised to ensure that resources are available in schools to support young people (e.g. counselling service, signposting to external agencies). A whole school approach could be adopted to increase pupils' awareness of risks online and how to keep safe online. Education professionals are in a unique position to be able to address this within school. If the minimum number of participants cannot be achieved by recruiting in the local area then schools across Grampian could be approached. Alternatively the design of the study could be altered to an online survey.

Knowledge Exchange

12) How do you intend to report and disseminate the results of the study? (IRAS A51)

The results of this study will be written up in a thesis which will be submitted as part of a Doctorate in Clinical Psychology. A systematic review and the findings of the study will be written up in journal format so that they can be submitted for publication in peer-reviewed journals. Appropriate journals will be identified as the project progresses.

The results of the study will also be disseminated locally. A brief report will be compiled to provide an overview of the results of the study for the schools which take part. The results will also be disseminated through a presentation to the local Child & Adolescent Mental Health Service to increase their awareness of online risk taking behaviour in adolescents in the local area. In addition, email or postal addresses will be requested from young people who would like information on the outcome of the study. An accessible summary of the research findings will be sent to them in due course. It is hoped that this may increase their insight into risky behaviour online and they may modify their behaviour in future.

13) What are the anticipated benefits or implications for services of the project?

It is important that professionals working alongside young people are aware of the factors associated with online risky behaviour and the associated harm. Dissemination of the results of the study in the local area will help to raise awareness amongst both education and health professionals. If the study reveals that childhood trauma and online risk taking behaviour is highly prevalent, this may highlight a need for additional resources to be sourced in order to support young people in school. Education professionals could improve young people's awareness of online risks and how to keep themselves safe through the P.S.E curriculum which may help to safeguard them in future.

The results of the study may also have implications for the local Child & Adolescent Mental Health Service. This study may highlight some of the factors which influence online risky behaviour in adolescents and therefore help mental health professional to identify individuals who are most vulnerable. Experiencing childhood trauma, insecure attachment and having difficulties with emotion regulation are likely to affect a significant proportion of clients whom attend their service. The results of the study may encourage changes in service provision such as the inclusion of screening questions regarding online risky behaviour during the initial assessment interview to ensure that vulnerable young people are identified and adequately supported.

14) Are there any potential costs to this project?

Stationary, printing costs and travel expenses will be covered by NHS Grampian. An application will be made to the University of Edinburgh to request that the cost is covered for the Childhood Trauma Questionnaire manual and copies of the associated questionnaire.

15) Any other relevant information.

N/a

16) Key References (Full reference list can be provided if requested)

Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, 7, 147-178.

Bartholomew, K. & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, 61, 226-244.

Beauchaine, T. (2015). Future Directions in Emotion Dysregulation and Youth Psychopathology. *Journal of Clinical Child & Adolescent Psychology*, 0, 1-22.

- Bernstein, D.P., Ahluvalia, T., Pogge, D. & Handelsman, L. (1997). Validity of the Childhood Trauma Questionnaire in an adolescent psychiatric population. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36(3), 340-348.
- Bernstein, D.P., Stein, J.A., Newcomb, M.D., Walker, E., Pogge, D., Ahluvalia, T. *et al.* (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse & Neglect*, 27(2), 169-190.
- Carr, J. (2004). *Children's safety online: A digital manifesto*. London: Children's Charities' Coalition for Internet Safety.
- Davis, K. (2013). Young people's digital lives: The impact of interpersonal relationships and digital media use on adolescents' sense of identity. *Computers in Human Behavior*, 29(6), 2281-2293.
- Ditzen, B., Schmidt, S., Strauss, B., Nater, U. M., Ehlert, U. & Heinrichs, M. (2008). Adult attachment and social support interact to reduce psychological but not cortisol responses to stress. *Journal of psychosomatic research*, 64(5), 479-486.
- Erkan, M., Gencoglan, S., Akguc, L., Ozatalay, E. & Fettahoglu, E.C. (2015). Attachment styles and psychopathology among adolescent children of parents with bipolar disorder. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, 21, 1083-1088.
- Finkelhor, D., Mitchell, K.J. & Wolak, J. (2011). Second Youth Internet Safety Survey (YISS-2) [Dataset]. Available from National Data Archive on Child Abuse and Neglect web site: <http://www.ndacan.cornell.edu>
- Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, 18, 233-239.
- Gratz, K. L. & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment*, 26, 41-54.
- Griffin, D.W. & Bartholomew, K. (1994). The metaphysics of measurement: The case of adult attachment. *Advances in Personal Relationships*, 5, 17-52.
- Hayes, A.F (2009): Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408-420.
- Helweg-Larsen, K., Schütt, N. & Larsen, H. (2012). Predictors and protective factors for adolescent Internet victimization: Results from a 2008 nationwide Danish youth survey. *Acta Paediatrica*, 101(5), 533-539.
- Keskin, G. & Cam, O. (2010). Adolescents' strengths and difficulties: approach to attachment styles. *Journal of Psychiatric & Mental Health Nursing*, 17(5), 433-441.
- Kim-Spoon, J., Cicchetti, D. & Rogosch, F.A. (2013). A longitudinal study of emotion regulation, emotion lability-negativity, and internalizing symptomatology in maltreated and nonmaltreated children. *Child Development*, 84(2), 512-527.
- Liau, A.K., Khoo, A. & Hwaang, P. (2005). Factors influencing adolescents' engagement in risky internet behavior. *Cyberpsychology & Behavior*, 8(6), 513-520.
- Livingstone, S., Haddon, L., Görzig, A. & Ólafsson, K. (2011). *Risks and safety on the internet: The perspective of European children*. Full Findings. LSE, London: EU Kids Online.

- Livingstone, S. & Helsper, E. (2007). Taking risks when communicating on the internet: The role of offline social-psychological factors in young people's vulnerability to online risks. *Information, Communication and Society*, 10(5), 619-643.
- Livingstone, S. & Smith, P.K. (2014). Annual Research Review: Harms experienced by child users of online and mobile technologies: The nature, prevalence and management of sexual and aggressive risks in the digital age. *Journal of Child Psychology and Psychiatry*, 55, 635–654.
- Marganska, A., Gallagher, M. & Miranda, R. (2013). Adult attachment, emotion dysregulation, and symptoms of depression and generalized anxiety disorder. *American Journal of Orthopsychiatry*, 83(1), 131-141.
- Mickelson, K.D., Kessler, R.C. & Shaver, P.R. (1997). Adult attachment in a nationally representative sample. *Journal of Personality and Social Psychology*, 73(5), 1092-1106.
- Mitchell, K. J., Finkelhor, D. & Wolak, J. (2007a). Youth Internet users at risk for the most serious online sexual solicitations. *American Journal of Preventive Medicine*, 32(6), 532-537.
- Mitchell, K. J., Finkelhor, D. & Wolak, J. (2007b). Online requests for sexual pictures from youth: Risk factors and incident characteristics. *Journal of Adolescent Health*, 41, 196-203.
- Mitchell, K.J., Jones, L.M., Finkelhor, D. & Wolak, J. (2014). *Trends in Unwanted Online Experiences and Sexting: Final Report*. Durham, New Hampshire: Crimes against Children Research Center.
- Mitchell, K. J., Sabina, C., Finkelhor, D. & Wells, M. (2009). Index of Problematic Online Experiences: item characteristics and correlation with negative symptomatology. *Cyberpsychology & Behavior*, 12(6), 707–711.
- Mitchell, K., Wolak, J. & Finkelhor, D. (2007c). Trends in youth reports of unwanted sexual solicitations, harassment and unwanted exposure to pornography on the Internet. *Journal of Adolescent Health*, 40, 116-126.
- Neumann, A., van Lier, P.A.C., Gratz, K.L. & Koot, H. M. (2010). Multidimensional assessment of emotion regulation difficulties in adolescents using the Difficulties in Emotion Regulation Scale. *Assessment*, 17(1), 138–149.
- Noll, J.G., Shenk, C.E., Barnes, J.E. & Haralson, K.J. (2013). Association of maltreatment with high-risk Internet behaviors and offline encounters. *Pediatrics*, 131, 510-517.
- Ofcom (2014a). *Children and parents: Media use and attitudes report*. Available at http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/media-use-attitudes-14/Childrens_2014_Report.pdf (Retrieved 4 July 2015).
- Ofcom (2014b). *Children's online behaviour: issues of risk and trust*. Available at <http://stakeholders.ofcom.org.uk/binaries/research/research-publications/childrens/report.pdf> (Retrieved 14 July 2015).
- Oshri, A., Sutton, T.E., Clay-Warner, J. & Miller, J.D. (2015). Child maltreatment types and risk behaviors: Associations with attachment style and emotion regulation dimensions. *Personality and Individual Differences*, 73, 127-133.
- Pears, K.C. & Fisher, P.A. (2005). Emotion understanding and theory of mind among maltreated children in foster care: Evidence of deficits. *Development and Psychopathology*, 17(1), 47-65.
- Perez, J., Venta, A., Garnaat, S. & Sharp, C. (2012). The Difficulties in Emotion Regulation Scale: Factor structure and association with nonsuicidal self-injury in adolescent inpatients. *Journal of Psychopathology and Behavioral Assessment*, 34(3), 393-404.
- Peter, J., Valkenburg, P. & Schouten, A. (2006). Characteristics and motives of adolescents talking with strangers on the Internet. *Cyberpsychology & Behavior*, 9, 526-530.

- Preacher, K. J. & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36, 717-731.
- Raffaelli, M. & Crockett, L. J. (2003). Sexual risk taking in adolescence: The role of self-regulation and attraction to risk. *Developmental Psychology*, 39, 1036–1046.
- Scharfe, E. (2009). The Adolescent Relationship Scales Questionnaire. Trent University web page. Retrieved on May 15th 2015 from http://www.people.trentu.ca/escharfe/index_files/Page791.htm
- Scharfe, E. & Bartholomew, K. (1994). Reliability and stability of adult attachment patterns. *Personal Relationships*, 9, 51–64.
- Smahel, D. & Wright, M.F. (eds) (2014). *Meaning of online problematic situations for children. Results of qualitative cross-cultural investigation in nine European countries*. LSE, London: EU Kids Online.
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, 9, 69–74.
- Tarrant, M., MacKenzie, L. & Hewitt, L.A. (2006). Friendship group identification, multidimensional self-concept, and experience of developmental tasks in adolescence. *Journal of Adolescence*, 29(4), 627-640.
- Wells, M. & Mitchell, K.J. (2008). How do high-risk youth use the internet? Characteristics and implications for prevention. *Child Maltreatment*, 13, 227-234.
- Wolak, J., Finkelhor, D. & Mitchell, K. (2008). Is talking online to unknown people always risky? Distinguishing online interaction types in a national sample of youth internet users. *Cyberpsychology & Behavior*. 11, 340-343.
- Wolak, J., Mitchell, K. J. & Finkelhor, D. (2003). Escaping or connecting? Characteristics of youth who form close online relationships. *Journal of Adolescence*, 26(1), 105–119.
- Wolak, J., Mitchell, K. J. & Finkelhor, D. (2007). Unwanted and wanted exposure to online pornography in a national sample of youth Internet users. *Pediatrics*, 119(2), 247-257.
- Whittle, H., Hamilton-Giachritsis, C., Beech, A. & Collings, G. (2013). A review of young people's vulnerabilities towards online grooming. *Aggression and Violent Behavior*, 18, 135-146.
- Ybarra, M. & Mitchell, K. (2007). Prevalence & frequency of Internet harassment instigation: Implications for adolescent health. *Journal of Adolescent Health*, 41(2), 189-195.
- Ybarra, M., Mitchell, K., Finkelhor, D. & Wolak, J. (2007). Internet prevention messages: Targeting the right online behaviors. *Archives of Pediatrics & Adolescent Medicine*, 161, 138-145.
- Ybarra, M., Mitchell, K. & Wolak, J. (2008). How risky are social networking sites: A comparison of places online where youth sexual solicitation and harrassment occurs. *Pediatrics*, 121, 350-357.

Appendix 6: Ethical Approval from the School of Health in Social Science



SCHOOL of HEALTH IN SOCIAL SCIENCE
CLINICAL AND HEALTH PSYCHOLOGY

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email submitting.ethics@ed.ac.uk

Cara Griffiths
Trainee Clinical Psychologist
University of Edinburgh

31 August 2016

Dear Cara,

Application for Level 2 Approval

Reference: CLIN311

Project Title: Childhood Trauma and Electronic Victimisation in an Adolescent Sample: The
Mediating Role of Attachment and Risky Electronic Communication

Academic Supervisor: Ethel Quayle

Thank you for submitting the above research project for review by the Department of
Clinical and Health Psychology Ethics Research Panel. I can confirm that the submission has
been independently reviewed and was approved on the 24th August 2016.

Should there be any change to the research protocol it is important that you alert us to this
as this may necessitate further review.

Yours sincerely,

Kirsty Gardner
Administrative Secretary
Clinical Psychology

Appendix 7. Approval from the Local Authority

From: Don Toonen [Don.Toonen@moray.gcsx.gov.uk]
Sent: 23 June 2016 15:19
To: Griffiths Cara (NHS GRAMPIAN)
Subject: Cyber-bullying survey

Cara

Thank you for taking the time to discuss your research and for sharing your research protocol with me.

I very much welcome the research as outlined in your protocol. From my work on developing an anti-bullying approach for schools in Moray I know that cyberbullying is an issue that is of great concern both to teachers and parents.

Your research comes at a very good time as, you will know, we are currently in the process of developing a new approach and have conducted a survey among pupils across Moray to establish the extent to which bullying in general occurs. We intend to follow up the survey shortly with some more in-depth interviews with a number of pupils who have participated in our survey and with their parents. Having read your protocol I feel there is little duplication in your work compared with what we're doing. In fact, I think that your research can assist us by giving more insight in some of crucial issues around bullying in a way that we are unable to achieve. I very much look forward to the results of this research.

As we discussed today, I am involved in a process involving consultations with various stakeholders with the aim of developing an anti-bullying approach for Moray that reflects the national standards. Bullying was identified as one of the main themes of our Equality Outcomes which were published in April 2013. More information about this can be found on http://www.moray.gov.uk/moray_standard/page_86092.html.

I have been trying to find the document which lists all the datazones in Moray to postcodes. Unfortunately, the document I have lists them for Elgin only.

I look forward to hearing more about your research. If there is any way in which I can be of assistance, please don't hesitate to contact me.

Kind regards

Don

Don Toonen
Equal Opportunities Officer
The Moray Council
Elgin HQ
IV30 1BX
01343 563321
Mobile: 07976494876
<mailto:don.toonen@moray.gov.uk>
www.moray.gov.uk<<http://www.moray.gov.uk>>

Appendix 8: Approval of Ethics Amendment from the School of Health in Social Science

Re: D.CLIN.THESIS-LEVEL 2-AMENDMENT-CARA GRIFFITHS
CLINICAL PSYCHOLOGY Research Ethics <submitting.ethics@ed.ac.uk>
Griffiths Cara (NHS GRAMPIAN);QUAYLE Ethel <Ethel.Quayle@ed.ac.uk>;

Dear Cara,

Thank you for your application. I have processed and signed-off on the amendment. The signed form is attached. For ease I have only attached the Pt 2 scan of your pdf, but the form should of course be kept as a whole for archiving purposes.

Best wishes,

Angus

Angus MacBeth

Lecturer in Clinical Psychology

Ethics Tutor

Appendix 9: Research and Development Management Approval

Research and Development

Foresterhill House Annexe
Foresterhill
ABERDEEN
AB25 2ZB

Dr Chris Wiles
The Rowan Centre
Maryhill
Elgin
Morayshire
IV30 1AT

Date	09/09/2016
Project No	2016PH010
Enquiries to	Lynn Massie
Extension	53846
Direct Line	01224 553846
Email	grampian.randdpermissions@nhs.net

Dear Dr Wiles

Management Permission for Non-Commercial Research

STUDY TITLE:	Childhood trauma and electronic victimisation in an Adolescent Sample: The mediating role of attachment and risky electronic communication
PROTOCOL NO:	V6; 1.9.16
REC REF:	N/A (CLIN 311)
R&D REF:	2016PH010

Thank you very much for sending all relevant documentation. I am pleased to confirm that the project is now registered with the NHS Grampian Research & Development Office. The project now has R & D Management Permission to proceed locally. This is based on the documents received from yourself and the relevant Approvals being in place.

All research with an NHS element is subject to the Research Governance Framework for Health and Community Care (2006, 2nd edition), and as Chief or Principal Investigator you should be fully committed to your responsibilities associated with this.

R&D Permission is granted on condition that:

- 1) The R&D Office will be notified and any relevant documents forwarded to us if any of the following occur:
 - Any Serious Breaches in Grampian (Please forward to pharmaco@abdn.ac.uk).
 - A change of Principal Investigator in Grampian or Chief Investigator.
 - Any change to funding or any additional funding
- 2) The R&D Office will be notified when the study ends.

- 3) The Sponsor will notify all amendments to the relevant National Co-ordinating centre. For single centre studies, amendments should be notified to the R&D office directly.

We hope the project goes well, and if you need any help or advice relating to your R&D Management Permission, please do not hesitate to contact the office.

Yours sincerely

A handwritten signature in black ink, appearing to read 'S. Ridge', with a stylized flourish at the end.

Susan Ridge

Non-Commercial Manager

cc: CI – Miss Cara Griffiths

Research Monitor

Sponsor: The University of Edinburgh

Appendix 10: Skewness and Kurtosis Values for the Main Variables and Covariates

Variable	Skewness value	SE	Skewness z-score	Kurtosis value	SE	Kurtosis z-score
Childhood maltreatment	1.704	.225	7.573**	2.969	.446	6.657**
Risky electronic communication	.923	.225	4.102**	1.912	.446	4.287**
Attachment anxiety	.187	.225	0.831	-.524	.446	-1.175
Attachment avoidance	-.090	.225	-0.4	-.239	.446	-0.536
Online victimisation	1.005	.225	4.467**	.750	.446	1.682
Frequency of SMS/MMS	-1.003	.225	-4.458**	.090	.446	.202
Frequency of IM	-1.564	.225	-6.95**	.947	.446	2.12*
Frequency of SNS	-1.79	.225	-7.96**	1.964	.446	4.40**
Frequency of internet use	-6.049	.225	-26.88**	35.210	.446	78.94**

*Note: * $p < 0.05$, ** $p < 0.01$*

Appendix 11. Frequency of Risky Electronic Communication Behaviours

Risky electronic communication behaviour	Never N (%)	Less than a few times a year or more frequently	On a weekly basis or more frequently
Shared personal information with people they do not know	69 (59.5)	47 (40.5)	5 (4.3)
Shared password with friend or partner	63 (54.3)	53 (45.7)	5 (4.3)
Communicated with people they do not know in person	42 (36.2)	74 (63.8)	26 (22.4)
Shared a picture of themselves	23 (19.8)	93 (80.2)	35 (30.2)
Shared a video of themselves	49 (42.2)	67 (57.8)	17 (14.7)
Shared a naked or semi-naked picture of themselves	102 (87.9)	14 (12.1)	2 (1.7)
Shared a naked or semi-naked video of themselves	112 (96.6)	4 (3.4)	2 (1.7)